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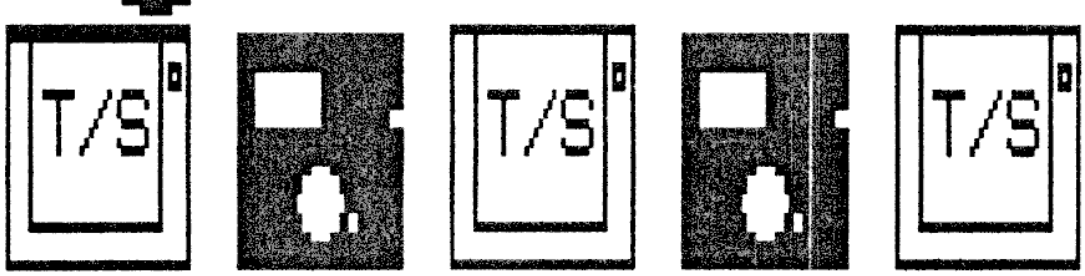
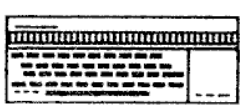
UPDATE MAGAZINE





UPDATE MAGAZINE
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UPDATE COMPUTER SYSTEMS is Edited and Published by Carol and Frank Davis of P.O. Box 1095, Peru, Indiana 46970. Phone number is 317-473-8031, with normal phone hours being between 5 P.M. and 9:30 P.M. Eastern Time during the week and Noon to 6 P.M. on weekends. When we are not there or unavailable, please leave a message with our answering machine, you'll be answered by mail.

Mailing date for all issues is the fifteenth of the issue month. At times due to Postal Holidays, or the 15th falling on a weekend (bulk mail not accepted on weekends) they will be received at the Postal Unit the next business day. Please allow two to three weeks from this date before assuming your issue is not on its way to you. The Postal service tells us it can take as long as 6 weeks via bulk mail. For those wanting speedier service we can arrange your issue to go by First Class Mail, but that will raise the price of your subscription by $3.00.

The magazine is published on a quarterly basis in the months of October, January, April and July. All subscriptions begin and end at the same time...first issue being October and all renewals coming due after receipt of the July issue. The cost is $18.00 U.S. for a one year subscription for North America, and for those outside of this area $20.00 U.S. We accept personal and business checks, money orders, and Cash. We do not accept credit cards at this time, due to costs. Back issues, where available can be obtained from us, at regular prices.

Assistance in Publishing this magazine is provided by Eliad P. Wannum, poet, computer user and all round good guy. The magazine is made possible by the regular contributors such as Peter Hale, Bill Cable, Al Feng, Bob Hartung to name a few, and by the many contributions of other writers and programmers. Your contributions to this magazine are welcome. This is truly a magazine BY THE USER AND FOR THE USER OF SINCLAIR, TIMEX AND CAMBRIDGE COMPUTERS. When we cover other operating systems such as CPM or MSDOS it will be in relationship to our computers or emulators for our systems to run their software. We primarily cover disk based systems and software for the TS2068, Spectrum, QL, Z88...and will cover items on the TS1000 if disk drive based or in relationship to using it with the above mentioned computers. We do accept reviews of peripherals that are useable by our systems, such as scanners, printers, modems, etc. Submissions should be on disk or hard copy (two copies and at least NLQ, no draft mode). If there is artwork, please let us know in what order it should be used, and provide it as a saved screen or hard copy screen dump. The format is very relaxed. Just pay attention to the width of the pages and allow 3/4 inch top and bottom, and make the left and right margins wide enough to accomodate a 3 hole punch that does not cut out some of the text. We have enlarge and reduction capacity to adjust a page, but may lose some print legibility in the process. Most important is legibility. Draft quality dot matrix does not reproduce well. Print size preference is ELITE 12 characters per inch. PICA 10 characters per inch is okay also, but please no condensed print. Please do not make programs submitted on cassette tape under any circumstance, disk or hardcopy only. Exceptions to this would be the wafers used on the Rotronics Wafadrive for the Spectrum or TS2068 with emulator. Z88 programs on disk may be in either IBM or QL format or hardcopy. TS2068 programs may be LLISTED in 32 chr. lines.

UPDATE COMPUTER SYSTEMS PAGE DIRECTORY, APRIL 1992

The computer that an article concerns is marked by using the following mark at the start of the page number-TS2068 = *,QL = # ,Z88 = % ,TS1000=^. There will be no mark if the article or ad applies to all or several different computer systems.

Inside Front Cover contains magazine basic information
Page No. 1---Directory
Page No. 2---Not Quite An Editorial, Just News
*Page No. 3---Locked Out? How To Recover! by Don Lambert
*Page No. 4---LKDOS vs JLO SAFE by Bill Pedersen
*Page No. 5---Mechanical Affinity Ad--TS2068
Page No. 6---Sinclair Publications, 2nd Look by E.P. Wannum
Page No. 7---Back Issues of UPDATE and Late Breaking News About Computer Monthly
Page No. 8---RMG Ad
*Page No. 9---4 Times Screen$ by Abed Kahale
Page No. 10---Disk Operating Systems by Bill Pedersen
#Page No. 11---Archive Made Easy by Andrew Hradesky
#Page No. 15---E.E.C. Ltd Ad (QL distributor, UK)
*Page No. 16---John McMichael Ad for Print Factory Graphics
#Page No. 17---Interest Computation Program by Paul Holmgren
#Page No. 20---Bootsort Without TK2 by Robert Hartung
#Page No. 21---Cable Column--Archive Series--Part 8 by Bill Cable of Wood and Wind Computing
#Page No. 23---Using Quill for ASCII Files by R. Hartung
Page No. 24---A Composite Booster by Bob Hartung
Page No. 25---Mechanical Affinity Ad
#Page No. 26---A Selective Menu-Loader by Robert Hartung
Page No. 27---DMA--Computerfest '92 Ad
#Page No. 28---EMSoft Ad
#Page No. 29---NESQLUG Demonstrates New QL Extension by Peter Hale (news for April)
#Page No. 30---Notes From EMSoft by Peter Hale
#Page No. 30---Lighthouse by Taylor Penrose
#Page No. 31---Lighthouse listing (good tutorial aid)
#Page No. 32---IQLR Ad
*Page No. 33---Printed Circuit Board Development Program by Bill Pedersen Manual Part 1
*Page No. 36---Part 1 of listings for Bill Pedersens CAD Program (more next issue)
*Page No. 45---The Sinclair Desktop Publishing Journal by Mike Felerski
#Page No. 49---QUANTA's Revisions to Library and How to Obtain from the U.S. Librarian--Paul Holmgren
#Page No. 50---Jumper Settings For The 3.2 Meg Drive by Dick Taylor (excerpted from IQLR)
Back Covers ---Issue Disks for TS2068 and QL

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NOT QUITE AN EDITORIAL, JUST NEWS

by Frank W. Davis

Well it had to happen at some time, this issue I ran out of room for all that I wanted to cover. The sad part of all of this is that I wanted to have more coverage for the Z88, but I am stuck with what is submitted to the magazine. We have picked up at least 6 more of our readers that have Z88s, so I hope to see this improve a bit in the future. At the present about 30% of you have and use to some extent a Z88. Over half of you have QLs and about 40% of you have TS2068s. Many of you have 2 or more of the above, -and at least 25% still have a TS1000 and still consider it a neat little machine to use.

For those who have or are considering a Gold Card for your QL, I have included something in this issue that I normally do not do, an article taken from another magazine. The article was of such high quality and the news of such importance that I felt duty bound to make this data available to my readers. This article concerns the 3.2 meg drives and the proper settings to use the TEAC version of these. The article is by Dick Taylor and is from the International QL Report. Thanks guys!

Also, when you come to the ads for Mechanical Affinity for the Gold Card, they are no longer $500 plus $10 P & H; they are now going for $490 and this includes P & H and insurance. They are in stock and available. Plans are also in the works to include much more in the way of English, German and Italian hardware and software for the QL and the Z88. If they do not have what you want in stock they can usually get it for you. We need to have more North American dealers for our computers!

More good news to follow.

In this issue we have started the first part of an extensive program for you to type in that will allow you to create printed circuit boards, high definition art, logos, banners, etc. on your TS2068. It is a full featured Computer Aided Design program, and it is a biggy. We did not have room for all of it in one issue, so more in the next issue. For those in a hurry or not wanting to spend all of their available free time typing it in...it is being offered as an Issue Disk. Check the back pages for details on how to obtain this work of art from Bill Pedersen for the Larken and Oliger disk systems. For those who order, they will get many files all set to use for printed circuit boards.

Some news on the Z88 front from Mike Fink of Domino Cubes and a new location. Domino Cubes, 484 W. 43rd St., Suite 27Q, NY, NY 10036. Phone No. 212-971-0368, and FAX is 212-268-4122. Mike promised me some articles and ads for the next issue, and said to tell all of you that he has at least 3 things for your Z88 that can be found no where else: (a) a mail merge that really works for the Z88, (b) Remote Control Macro that does DTP and multiple copies and you can turn it on and off from anywhere, (c) single stroke loading of selected files from an eprom into an empty filer. Of course he also sells Z88s and books, cables, software, etc.

Nigel Searle of 16 Church Street, Keene, NH 03431, Telephone 1-800-388-9836, has for sale: Z88s for $199, Memory 128K for $40, Memory 512K for $160, and other items.

LOCKED OUT? HOW TO RECOVER!

T/S 2068 AND THE LARKEN AND OLIGER DISK DRIVES.

Submitted by Donald S. Lambert

Letter to George Chambers 03 02 1992.

In all my computing, I have been trapped by a problem three times. Of course it is all my fault but maybe there is a way out. And that is on each of these times I have either tried to SAVE to a disk drive that I didn't have or on two occasions I tried to SAVE when the disk interface to disk drive ribbon cable was disconnected. Try as I might I have found no way to abort the SAVE and have had to turn off the computer and lose the file. It might be possible to plug in the disk drive ribbon cable but there is always the possibility of zapping something. And while I have a Larken disk interface with a RAMdisk that is full and besides once you have committed to a disk drive the computer hangs onto that drive until it is used. What do you do in that situation?

George replied 03 14 1992.

I have been looking at your letter. You asked about how to break out of a computer lock-up when you try to make a SAVE/LOAD to a non-existant drive. You are correct, I would never plug a drive in while the computer is powered up.

I thought I probably knew the answer so I shut off my computer, disconnected my drive 0. Then I re-powered and tried saving an Mscript file to drive 0. Well all the other drives spun of course, but not the disconnected drive 0. The computer was hung up. I then did what I would usually do. I pressed the NMI- button and then the A key. As I expected the computer broke out of it's hung-up condition with an error report at the line in the program where the SAVE effort occured.

That is pretty simple. I thought everyone knew that. To continue, if you inadvertently press the NMI- button you can recover from it without harm by pressing the ENTER key. Also, if you are trying to breakout of a program that is heavily protected, and the NMI- and A key routine does not work, try pressing the NMI- button and then press the 1 key; i. e. do an NMI- type save to a protected disk. You will get a "Protected disk" error report, and you will be back out of the lockup. Sometimes, depending on the nature of the protection the computer simply crashes and you get the Sinclair logo. I use this method particularly with Spectrum games, which for the most part are heavily protected.

Don: I had never considered the use of the NMI- button so I guess I am not everyone.

I have an idea to try out, since both the Larken and the Oliger use the NMI- button will it also work the same on the Oliger? It works with the Oliger except that the A key does nothing but the 1 key will allow you to use the BREAK function and get "D Break - CONT REPEATS 0:1". I don't know if anyone ever gets locked out but this is one way to recover. But here is a possible way out of a dilemma that would otherwise result in a loss of data. 0/0.

LKDOS vs JLO SAFE

John Oliger's format predates Larry Kenney's, giving Larry the opportunity to build on it. As you can see, Larry added the IBM index mark which could make his disks readable using MSDOS, though only through ROM BIOS calls because there is no boot record recorded. Its value is questionable.

John Oliger had a similar advantage from another source, but did not improve on it. The decision was made to use 512 byte sectors instead of 1Ø24 byte five sector ISO MFM. It seemed like a good idea at the time, but nobody who wanted to develop a 2Ø68/Spectrum DOS was expert in disk drive technology. The 1Ø sector/track 512 bytes/sector format became a de-facto standard. It is really quite unfortunate that this happened, but consider what it would have been like without any 2Ø68 DOS at all.

For reliability reasons, there is only enough room for nine 512 byte sectors on a double density disk. Gaps straddling data records build up splice marks with successive writes. Drive speed variations demand that gaps be a certain minimum size. Controllers need intact gap bytes before and after splices to allow them to detect and ignore them. Both formats above require equipment to be better than average. It is not unusual for available drives to give trouble, much more noticeable with LKDOS.

Using five sectors of 1Ø24 bytes each would require only minor changes in machine code and be invisible to the user, however, it would not be easy to reformat existing disks. New EPROMS would be needed. This does not seem to be a good answer.

John has an updated EPROM which increases the DATA gap acceptably.

LKDOS uses software to FORMAT disks. I have revised this program for my own use for other reasons, so changing it so both system formats MATCH is "duck soup". Actually, they need not match exactly. The new LKDOS format loses its IBM INDEX GAP, and ignores JLO SAFE's track sector stagger. The only observable effect is losing CRC errors.

John originally used * to trigger the format editing error which he then used to bank switch his own ROM into low memory. Later he changed this to / because the 2Ø68 partially supports * in relic code, changing syntax error sensing locations and messages. Forcing errors so they can be "trapped" is an ancient trick with programmers, but it is only a temporary way to add new features. It should <u>never</u> be used for permanent functions. The change to / was symptomatic.

Larry Kenney took a different approach. He created a bank switching command to replace error trapping. In a way, *, /, and RANDOMIZE USR 1ØØ are equivalent bank switching instructions. They differ in <u>convenience only</u> as far as the user is concerned, though this is not true for special features each elected to supply in their EPROMs. Both systems work and have their followings.

After formatting a disk, it is necessary to build a disk directory and File Allocation Tables (FAT) in track Ø.

Both systems combine the two, but in different ways (An expert would avoid simplification because of future problems). Both system authors pride themselves on this, yet both reap some of the problems caused by it.

John Oliger structures his directory so it contains a pointer to the disk location of the named file. With only one pointer per file, files must be stored without gaps between them so their lengths can be determined. It requires special attention when erasing files. Files must be rewritten to opened up space, and the directory updated. A file which expands enough to require another track must be renamed before it can be stored. These are the "wages of syntax", a relatively small price to pay.

Larry Kenney structures his directory so it contains a list of pointers for each named file. This permits holes to develop where files have been deleted. The list of pointers is consecutive unless holes are being filled. When this happens, files become fragmented, just as they do in MSDOS.

Defragmenting and closing up holes requires disk to disk transfer, though one drive is enough to do the job.

LKDOS has a file header system which JLO SAFE does not. It decreases the amount of data which can be stored compared with JLO SAFE, though not by much. Header information is placed at the beginning of every track, and some space is wasted at the end. There is enough data to reconstruct a corrupted directory.

The header contains a CRC entry. Because disk controllers generate and check their own CRCs, there seems no reason to include this redundant feature. Larry explained to me that this is required for his RAMDISK, so the directory reconstruction ability is a convenient side effect.

It would be foolish of me to expound on the merits of program features of each system. They are different. It is nice to have both but switching between them isn't easy -- though L. Crawford of London Ontario has a setup you will find hard to believe. His MACRO keyboard deserves a review in itself.

In closing, the 177Ø controller was designed to be a cheap replacement controller. It is ... cheap. It replaces a set of chips and components without duplicating their performance.

A respectable disk drive puts out a READY signal as soon as it is spinning fast enough to function correctly. Most reach this condition in less than one revolution of the disk. Of course, functioning implies a capable controller.

The 177Ø ignores this signal. It isn't even attached. The reason is simple enough. It does not contain a phase-locked-loop to synchronize its clock with the disk bit rate.

Instead, it contains the equivalent of a UART used with serial ports. By chopping a "frame" into smaller parts, you can change the size of a window in which an event (bit) occurs. That's why the 177Ø requires a higher frequency clock. Like a UART it is set up for a nominal baud rate and cannot tolerate much deviation from that rate.
of nominal. Though this is no problem for a phase-locked-loop, it is for the 177Ø. The penalty is the loss of many seconds when you use your disk a lot.

Even though John Oliger has done a remarkable job getting the best from the 177Ø, it is slow with respect to an IBM clone controller card which doesn't have to wait 5 revolutions before starting operation.

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SINCLAIR PUBLICATIONS, 2ND LOOK

by ELIAD P. WANNUM

Last issue I told you we would be looking at some of the newsletters of North America, so here we be. I also mentioned that I would hold off on subscribing to QL World, as at that time they had an uncertain future. It appears we can rest assured for now that QL World will be around for awhile, it was bought by what seems to be capable hands and is still publishing. Now let us see what we have in the way of news from Sinclair Clubs and Groups.

For QL users we have the NESQLUG News, % P.O. Box 8763, Boston, MA 02114. Seems to be bi-monthly and is edited by Peter Hale of EMSoft. Annual membership is $10, $5 for students, and $15 out of North America.

FDD Newsletter for the Zebra Disk Drive System, is edited by Jay Siegel, 1274 49 St., #821, Brooklyn, NY 11219, Phone 718 853-7521. A good mix of hardware, software and CPM coverage.

QZX, the Journal Covering Amateur Radio and Sinclair Computers. That is quite a mouth full, but just what you get from this long running newsletter edited by Alex F. Burr, K5XY, 2025 O'Donnell Drive, Las Cruces, NM 88001. $15 a year for 12 issues. This is not just for ham radio operators.

SINC-LINK, edited by Jeff Taylor of the Toronto Timex-Sinclair Users Club, 14 Richome Court, Scarborough, Ontario, M1K 2Y1. The largest newsletter put out by any North American club or group. It has very heavy emphasis on the Larken interface for the TS2068, good support for the TS1000, and above average QL coverage. No coverage of the Z88. Newsletter subscription alone is for $12, and full membership is $20 a year. Good use of Print Factory on the TS2068 for graphics.

The RAMTOP, is published quarterly, and is edited by Thomas Simon, 615 School Ave.,Cuyahoga Falls, Ohio 44221. It is the publication of the Cleveland TS Users Group. No mention of rates for those wanting to subscribe. Covers TS1000, PC, QL and TS2068.

SWYM, the newsletter for SEATUG, is edited by Chuck Kereluck and can be subscribed to by sending $10 to Dave Battershill, P.O. Box 64462, Tacoma, WA 98464. Seems to cover all but the Z88.

ISTUG, the newsletter of the Indiana Sinclair-Timex Users Group is edited by Frank Davis and assistant editor Mike Felerski of desk top publishing fame. It covers mainly the TS2068 and QL, but has occasional coverage for the Z88 and the TS1000. Newsletter subscriptions for non-members are $9 a year and can be obtained from ISTUG, 513 East Main, Peru, IN 46970.

THE PLOTTER, is the newsletter of the Clackamas Computer Applied Training Society, 1419 1/2 7th St., Oregon City, OR 97045. It is edited by Dick Wagner and is heavily contributed to by Rod Gowen of RMG. Subscription is by membership and is $20 a year. It covers all of the Sincalir computers, except the Z88. It also covers the PC, and IBM compatible shareware.

CATS Newsletter, the journal of the Capital Area Timex/Sinclair Users Group, is edited by Tim Swenson. It supports all of the Timex and Sinclair computers and a newsletter subscription can be obtained for $12 a year from CATS, P.O. Box 11017, Takoma Park, MD 20913.

For the Z88 user to get full coverage he can subscribe to Z88 EPROM, % Roy Woodward, Z88 Users Club, 68 Wellington St., Long Eaton, Nottingham NG10 4NG. Rate for a subscription is unknown at this time, but I have seen some excellent back issues. Resembles the QUANTA format of magazine/newsletter.

EXTRA *EXTRA*

BACK ISSUES OF UPDATE MAGAZINE

For those who are new to UPDATE and want to be able to get back issues that they may have missed, we will be offering the following for a short time only. This offer is good only till the end of July 1992. Any one back issue for only $4.50, or 4 issues for $16.00. We have available the following issues.

October 1991, July 1991, April 1991, January 1991, October 1990, April 1990, January 1990, October 1989, July 1989, April 1989, January 1989 and April 1988.

If ordered, these will be sent to the requested address by first class mail. From what we last heard from Bill Jones he did not indicate that he had any more back issues from when he was publishing UPDATE, so I assume these are the last issues available, other than by buying used copies from friends.

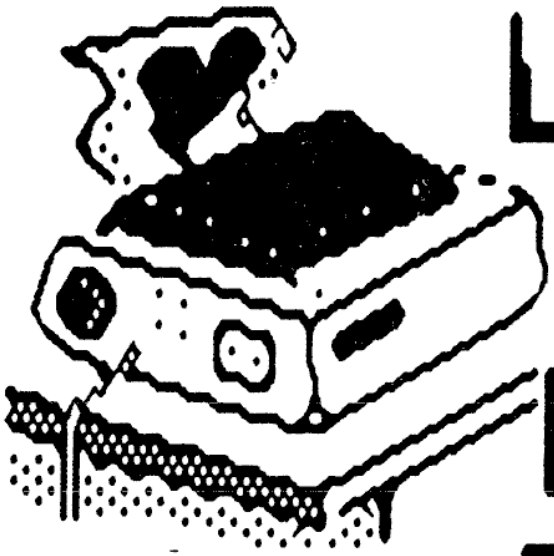
Now of course you may start or renew a subscription to UPDATE at any time and receive all of the back issues of the year in which you started the subscription. We may once in awhile be a week or two late getting the magazine out,but we will not leave you in the lurch like some have in the past.

We also have available for you copies, 2nd Edition, of the QL Survivors Guide, for $10.95 postage paid. Find out where the hardware, books, software,repair facilities, user groups and magazines are that cover the QL worldwide.

LATE BREAKING NEWS ABOUT COMPUTER MONTHLY

I just got a call from Bill Ferrebee, who writes the TS Column for Vulcans Computer Monthly. They told him that after the June issue they were going to be going to a strictly IBM and MAC format. Shades of Computer Shopper!!! This means that they will be dropping all of the Classic Computer coverage, from Commodore 64 to TI99, and us included. They will also be dropping the Amiga and Atari ST. Bill said this was a decision made by the owners of the company and not by the Editor or staff. I am not sure if it would do any good to let Vulcans know what we feel about this, but I am going to do so anyway. They seem to have hit me on all of my computers, from my QL to my Amiga and all in between. Speaking of the Amiga, I have the latest version of the QL Emulator for the Amiga. I plan to give a write up on this software in the next issue, and possibly the Spectrum emulator for the Amiga. I also have a Commodore 64, Atari ST, Mac and IBM emulator for my trusty Amiga. It is a nice computer except for the Workbench and CLI environment on it. It is great for emulating, but not all that hot for use as an Amiga if you are a programmer. It uses huge amounts of memory for screens and for many of its programs. I have a few programs that require 3 meg of memory as a minimun! Having weaned myself on computers such as the PDP 8 and 11 and the ZX81 I learned to conserve memory. Is this the wave of the future of computing?

One last note for all of you. You have only one more issue before it is time to renew again. Write and let us know if you want us to continue with UPDATE. It took a long time for most of you to get your renewals in the last time, and frankly I find that to be discouraging. All but a few ended up renewing.



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4 Times SCREEN$

Abed Kahale, 335 W. Newport Rd. Hoffman Estates, IL 60195

Font by ZUNK

Since my last article on the Tandy DMP105 printer, modifications were made to screen dump 4 times the normal size to about a half page worth. Also the print head is now controlled so it can plot to any location on the page. In this case, the font style controls the width; ELITE (12 CPI) & Expanded was used below. **One half the vertical pixels were used for one print head pass.** The program should be aplicable to other printers with proper modifications.
To obtain a negative (inverse video) or vice versa add **NOT.** **NOT POINT(C,R-xx)**

```
  1 REM TANDY DMP105 PRINTER DRIVER by Abed Kahale 1/92
 20 RANDOMIZE USR 100: OPEN #3,"LP"
 30 RANDOMIZE USR 100: POKE 16092,0: REM No line feed (oth
erwise double spacing)
 50 RANDOMIZE USR 100: POKE 16093,32: REM LPRINTs & CHR$s
sent to printer.
 80 LPRINT CHR$ 27;CHR$ 23;CHR$ 27;CHR$ 14;CHR$ 18: REM El
ite, Expanded (Elongated!) & Graphic mode.
 85>LPRINT CHR$ 10:REM Line feed.
 90 LPRINT CHR$ 27;CHR$ 16;CHR$ 0;CHR$ 35: REM Locates head
(margin) at 35 pixels from the left.
 95 RANDOMIZE USR 100: LOAD "C.C$"SCREEN$
155 FOR Y=0 TO 175 STEP 4: LET R=175-Y: REM vertical pixels
; tacken twice for 8-pin head.
160 FOR C=0 TO 255: REM Horizontal pixels.
170 LET B=0
180 LET B=B+POINT (C,R-.5): REM    divided by 2
190 LET B=B+2*POINT (C,R-1): REM     "     "
200 LET B=B+4*POINT (C,R-1.5): REM   "     "
210 LET B=B+8*POINT (C,R-2): REM     "     "
220 LET B=B+16*POINT (C,R-2.5): REM  "     "
230 LET B=B+32*POINT (C,R-3): REM    "     "
240 LET B=B+64*POINT (C,R-3.5): REM  "     "
250 LET B=B+128
255 IF IN 127<>236 THEN  GO TO 255: REM Checks if READY.
260 LPRINT CHR$ B;
270 NEXT C
280 LPRINT CHR$ 27;CHR$ 90;CHR$ 0: REM carriage return.
290 NEXT Y
300 LPRINT CHR$ 30: REM Back to character mode.
320 STOP
```

DISK OPERATING SYSTEMS

Historically, computer disks augmented or replaced magnetic tape reels. Essentially, a tape was pasted into a loop and flattened. The loop was fastened to a disk and spun under the usual read head. Because so many tracks could be accommodated, a movable head replaced multiple heads. In the interests of efficiency, several disks were stacked in a single drive. Early "stacks" which were removable did not use the top and bottom surfaces. Head loading was the opposite of the familiar caliper method and heads retracted.

The addressing method for stack drives is universal. The terms volume, head, cylinder, track, and sector are all derived from them, though there is some ambiguity in interpretation at times. There were also drives in the form of a cylinder with many, many heads for fast mainframe computers.

VOLUME — This generally refers to a lump of storage you can carry around. When the lump is handled by a jukebox type machine it is considered the same as removable storage except for label checking. It doesn't imply any particular medium of storage or an address. It could even be a book given modern character recognition technology.

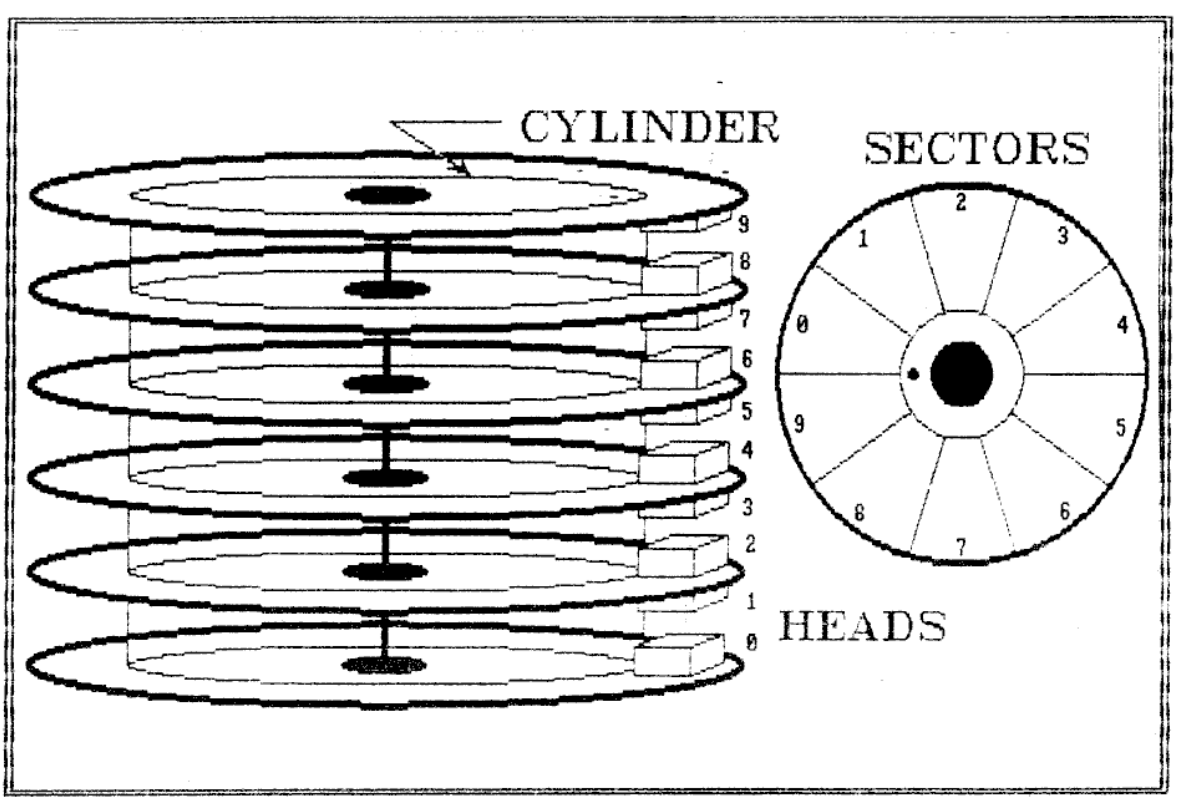
CYLINDER — A track on one side of one disk lines up with corresponding ones on every other disk and available side. Together they define a cylinder. Cylinders are numbered from the outside edge inward. This is NOT the track number. See why in a moment.

HEAD — This is either specified or included implicitly in SIDE. Usually, but not always, heads are numbered from bottom to top. A removable stack of 7 disks would have six pairs of sensitive surfaces and six pairs of heads. Heads would be numbered 0 through 11. For a 2 disk caliper stack (small hard drive), they number from 0 through 3.

"SIDE" — When there is only one disk in the stack, it is common to refer to SIDE instead of HEAD. This can be confusing if you forget they are different things entirely.

"TRACK" — With a single sided disk TRACK is the same as CYLINDER. Adding a second side introduces ambiguity. If you use TRACK and SIDE together, TRACK and CYLINDER **NUMBERS** match, BUT...
Some disk systems treat even TRACK numbers to be on SIDE 0 and odd numbers to be on SIDE 1. Oh boy! Let's stick with **DEVICE** (DRIVE), **VOLUME**, **HEAD**, **CYLINDER** and **SECTOR** and save us some headaches.

If we talk about TRACK as a physical storage unit, there is no problem. It is a very useful term, meaning a continuous place to record with no breaks, only ends. Any numbering of tracks is arbitrary.



ARCHIVE made easy
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by A. Hradesky

According to Webster's Ninth New Collegiate Dictionary, "data-base n (1967): a collection of data organized especially for rapid search and retrieval (as by a comuputer)".

According to the QL User Guide, "QL Archive is a database program which enables you to create filling systems for any type of information you choose".

As many of you know, QL-Archive (QLDB) is one of four programs given free with the purchase of a Sinclair QL. It is perhaps the most difficult of the three to program (but not to use). The everso powerful command structure and programming language within Archive can give the 'un-taught' user many fitful moments.

Before starting, the program we will be using comes straight from the QL User Guide (Chapter 10, page 21) and therefore is directly aimed towards the new user. This tutorial, will hopefully enlighten non-Archive users to realize the potential they have when given the proper tools for programing (like Archive).

We will, however, be giving the particular program somewhat of a face lift. A few tricks learned from QL World magazine will be used to give our program some flare.

First, let us start by creating a card index (Rolodex??). "An Archive file behaves rather like a card index. A real card index consists of a box containing a set of record cards, each card contains various items of information". In this case, the 'box' represents the most important part of any data base, the data base file (DBF). Technically speaking, without the DBF, there really would not be any data base. The DBF contains all the pertinent information which the data base program uses.

Load Archive as per the QL User Guide (versions 2.01, 2.30, 2.30RTM, 2.38 and 3.87 Turbo are all supported). To 'CREATE' the DBF, we must first specify all the fields each record will use. To accomplish this, enter the following as shown:

```
CREATE "mail"  <PRESS ENTER>
```

This places you in sort of a DBF editor. Archive expects you to input the titles of every field needed for your DBF. Knowing this, enter the following:

```
TITLE$          <PRESS ENTER>
FIRST_NAME$     <PRESS ENTER>
LAST_NAME$      <PRESS ENTER>
ADDRESS$        <PRESS ENTER>
CITY$           <PRESS ENTER>
STATE$          <PRESS ENTER>
ZIP_CODE$       <PRESS ENTER>
TELEPHONE$      <PRESS ENTER>
ISSUES_DUE      <PRESS ENTER>
MONTH_DUE$      <PRESS ENTER>
YEARLY_DUES$    <PRESS ENTER>
PAYMENT INFO$   <PRESS ENTER>
USERGROUP$      <PRESS ENTER>
```

When all typed in and complete, press <ENTER> to activate the 'ENDCREATE' command. This will notify Archive you have finished your input to create a DBF (which you've just created). Please take note, your DBF is presently open and will remain so until you 'CLOSE' it. The

To view your newly created DBF, type 'DISPLAY'. You will see a blank record with just the field names. Upon closer scrutiny, you will notice the field ISSUES_DUE does not have a '$' following it. To Archive, the '$' represents an open string. This means you can mix characters and numbers all on the same line. Without the '$', Archive expects numeric values only.

Let us explian the fields that represent your DBF. The TITLE$ field is designed for official titles, ie Dr, Mr, Mrs, etc. The ISSUES_DUE field represents the total number of issues (newsletters) due the member. The MONTH_DUE$ gives the month and year the member needs to renew his/her membership. The YEARLY_DUES$ is used to display the amount paid by the member for his/her membership. To record the check number, cash amount, date received, etc, the PAYMENT_INFO$ field is used. Finally, the USERGROUP$ field allows information about members who live outside the local area and just pay dues to receive the newsletter. Normally, these members officially belong to another group.

I am sure your fingers must be getting antsy, so let's 'CLOSE' our DBF and begin designing the mailing list program (type 'CLOSE' and press ,<ENTER>).

The following requirements are needed to accomplish our goal:

Add a new member to the DBF
Output all records to printer
Record membership payments
Modify a members record
Delete a members record
Order the DBF
Exit/Quit the program

explaination of each procedure module is best described within the QL User Guide. Type 'EDIT' and press <ENTER> to input the listing given. Follow the instructions.

The procedure 'BORder' gives us an ASCII border around the main menu by using 'CHR(XX)' codes. It was mentioned in QL World that Archive has this available. However, the author stated he could not find documents to support this except in PSION's PC-FOUR program (IBM's version of the QL's bundled software AND it costs almost $100.00, hah!). So, he experimented and found the coding was duplicated within the QL's version of Archive. Even though the affect is the same, the ASCII characters do not corespond to the 'CHR' numbers. Plus, the IBM ASCII character set is only half given for QL-Archive. But this does not stop us from (ab)using it.

The SCR procedure allows a 3-D or shadowing effect. The shadow will of course display as black. The actual paper with the menu will be colored red. And the background will show as green. If you do not like the green background, change the 'CHR(4)' in the first line to 'CHR(7)' for white (also alter the REM statement to reflect the change)

The WINDOW procedure really is sort of a clear screen (or clear window). The CHR(12) gives a form feed. The command line before it makes sure the window remains red in color.

When your program is all typed in, do not forget to save it. While in the procedure 'EDIT' mode, press <ESC>, then enter:

SAVE "MAILLIST" <PRESS ENTER>

```
proc BORder
print tab 8;chr(234);chr(4)+chr(231)+chr(40);chr(226)
print tab 8;chr(235);chr(4)+" "+chr(40)+chr(235)
print at 2,19;"TIMELINEZ MEMBERSHIP"
print tab 8;chr(230);chr(4)+chr(231)+chr(40);chr(225)
let A=0
while A<11
print tab 8;chr(235);chr(4)+" "+chr(40);chr(235)
let A=A+1
endwhile
print tab 8;chr(227);chr(4)+chr(231)+chr(40);chr(233)
endproc

proc bye
close
print "bye"
paper 0: mode 8,0: cls
stop endproc
endproc

proc change
rem ***** alter record *****
let n$="x"
cls
while n$<>""
getrec
if ok$="y"
alter
paper 2: cls
endif
endwhile
endproc

proc choose
rem ***** choose an option *****
print at 4,15;"SELECT OPTION"
print at 6,18;"[A]dd a member"
print at 7,18;"[D]espatch to printer"
print at 8,18;"[P]ay on account"
print at 9,18;"[C]hange a record"
print at 10,18;"[W]ipe a record"
print at 11,18;"[O]rder a file"
print at 12,18;"[Q]uit program"
print at 14,15;"CHOICE? ";
let choice$=lower(getkey())
if choice$="a": insert :window:BORder: endif
if choice$="d":despatch:window:BORder: endif
if choice$="p":pay:window:BORder: endif
if choice$="c":change:window:BORder: endif
if choice$="w":wipe:window:BORder: endif
if choice$="o": order last_name$;a: update :window:border: endif
if choice$="q":bye: endif
endproc
```

```
proc despatch
cls
all
dolabel
endall
endproc

proc dolabel
rem ***** print labels *****
if issues_due
if issues_due=1
doline;"REMINDER - Subscription Now Due"
else
doline;""
endif
doline;"                          "+month_due$
doline;title$+" "+first_name$+" "+last_name$
doline;address$
doline;city$+", "+state$+" "+zip_code$
let issues_due=issues_due-1
update
endif
endproc

proc doline;x$
lprint x$
endproc

proc getrec
rem ***** locate a particular record *****
cls
let ok$="n"
input "who? ";n$
if n$<>""
find n$
while ok$<>"y" and found()
print
print title$;" ";first_name$;" ";last_name$
print address$
print
print "OK (y/n)? ";
let ok$=lower(getkey())
cls
if ok$<>"y"
continue
endif
endwhile
if not found()
print
print n$;" not found"
endif
endif
endproc
```

```
proc pay
rem ***** record subscription payment *****
cls
let n$="x"
while n$<>""
getrec
if ok$="y"
let issues_due=issues_due+6
update
endif
endwhile
endproc

proc SCR
print chr(2)+chr(4):REM     GREEN PAPER
print chr(12):REM           FORM FEED = CLS
print chr(20)+chr(12)+chr(4)+chr(69)+chr(21)
print chr(2)+chr(0):REM     BLACK PAPER
print chr(12):REM           FORM FEED
print chr(20)+chr(10)+chr(3)+chr(67)+chr(20)
print chr(2)+chr(2):REM     RED PAPER
print chr(12):REM           FORM FEED
endproc

proc start
rem ***** start procedure *****
mode 0,0: cls
ink 7
SCR
BORder
open "mdv2_mail"
while 1
error choose
let n=errnum()
if n
print "Mistake - Press any key to continue"
let m$=getkey()
endif
endwhile
endproc

proc window
print chr(2)+chr(2)
print chr(12)
endproc
```


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```
proc wipe
rem ***** delete non-paying subscribers *****
cls
display
select issues_due=0
all
sprint
print at 15,0;"Delete (y/n)? ";
let ok$=lower(getkey())
print ok$
if ok$="y"
delete
print "DELETED"; tab 15
else
print tab 15
endif
endall
reset
endproc
```


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Oh No! Not Another Interest Computation Program!

Once upon a time a few idle hours I did find. Oh me! Oh my! What to do? Well why don't I try this copy of IBMCOPY that has been sitting here. Ok, now that I have it fired up, what am I going to try it on. Well, since I can't use the bulk of the IBM type of software I might try a BASIC program. Out went the word, I need a victim! One of my scouts returned with a program to compute loan interests AND a book on the version of BASIC it was written in.

My first task was to see if I could make it work with the QL. I achieved that goal. But, the program did not seem to have any flash, verve, it was so plain.

With out making too many changes to the basic concept of the program I began to look at things I could try that would make the program easier to run and nicer to look at.

One of the things I learned is that I STILL like SuperBasic. The other lesson I discovered is that even in the IBM world, program writers do not always use good programming techniques.

The program is pretty much straight forward, just follow the prompts, and the directions as they appear on the screen.

I intentionally did not make major changes in the basic structure of the program. The primary goal was making the conversion process work. All facets of the IBM Basic were translatable in this program. Toolkit did make the process easier.

One of the nicer things I was able to achieve was the appearance of a "window" for the directions for the various steps where you enter information in response to the prompts. The math did check out to be a little better then a PC with out a math co-processor.

```
100 REMark        your P. C. Mortgage Aid,  using ToolKit 2
110 :
120 WINDOW 488,240,20,0 : OPEN #4,scr_224x94a122x130 : MODE 8
130 CSIZE 3,1 : CLS : AT 2,8 : PRINT "Your Computer"
140 CSIZE 1,0
150 AT 9,9
160 PRINT "Mortgage Aid"
170 PRINT \ ,"  QL Version "
180 AT 19,1 : PRINT "Press space bar to continue"
190 IF INKEY$ <> " " : GO TO 190
200 MODE 4
210 DIM loan(500,2)
220 GO SUB 280
230 IF I$=CHR$(27) : STOP
240 IF I$="2" : GO TO 930
250 IF I$="1" : GO TO 500
260 GO TO 220
270 GO SUB 460
280 REMark -MAIN OPTION MENU
290 CLS : PRINT TO 22;" MORTGAGE ANALYSIS "
300 AT 3,8 : PRINT "OPTIONS - "
310 PRINT ,,"1 - Mortgage Payment Comparisons "
320 PRINT ,,"2 - Mortgage Amortization"
```

```
330 PRINT ,,"ESC KEY - EXIT"
340 PRINT \,,"OPTION NUMBER (1,2, OR ESC) =====>"\
350 CLS #4 : BORDER #4,2,4
360 PRINT #4;" MORTGAGE PAYMENT COMPARISONS"
370 PRINT #4;"    - Use This Option To Compare"
380 PRINT #4;"      The Monthly Payments Of"
390 PRINT #4;"      Mortgages At Various Rates"
400 PRINT #4;"      And Principal Amounts."
410 PRINT #4;" MORTGAGE AMORTIZATION"
420 PRINT #4;"    - Use This Option To Calculate"
430 PRINT #4;"      The Principal And Interest"
440 PRINT #4;"      Paid Over Any 12 Month Period."
450 AT 8,51
460 I$=INKEY$
470 IF I$="" : GO TO 460 : ELSE : PRINT I$; : RETurn
480 CLS
490 PF = AF*(RF/(1-(1/((1+RF)^NF)))) : RETurn
500 REMark  MORTGAGE COMPARISONS
510 CLS : PRINT " MORTGAGE PAYMENT COMPARISON PROGRAM "
520 CLS #4 : BORDER #4,2,4
530 PRINT #4;" MORTGAGE PAYMENT COMPARISONS"
540 PRINT #4;"    - Use This Option To Compare"
550 PRINT #4;"      The Monthly Payments Of"
560 PRINT-#4;"      Mortgages At Various Rates"
570 PRINT #4;"      And Principal Amounts."
580 PRINT #4
590 PRINT #4;" NOTE: To Select A Value Or Amount"
600 PRINT #4;"      Enter The Appropriate Value"
610 PRINT #4;"      And Press The ENTER Key."
620 AT 3,1 : INPUT "ENTER BASE MORTGAGE AMOUNT ===> ";A$
630 A = A$
640 IF A <= 0 : GO TO 600
650 AINC = 2000
660 AT 4,1 : PRINT TO 38
670 AT 5,1 : PRINT "(1 TO 35 PERCENT)";
680 AT 4,1 : INPUT "ENTER BASE INTEREST RATE = ====> ";IR$
690 IR = IR$
700 IF IR>35 OR IR<1 : GO TO 660
710 R = IR/1200 : RINC = 2.5E-3/12
720 AT 5,1 : PRINT TO 38
730 AT 5,1 : INPUT "ENTER NUMBER OF YEARS IN MTG (1 TO 35 YEARS) =>";Y$
740 N = Y$ * 12
750 NF = N
760 IF NF>420 OR NF<1 : GO TO 720
770 CLS
780 PRINT " MONTHLY MORTGAGE PAYMENT COMPARISONS "
790 AT 3,10 : PRINT Y$;"-YEAR MORTGAGE LOAN AMOUNTS";
800 AT 5,6 : PRINT "RATES",,," ";A;".00"
810 FOR I = 0 TO 14
820 AT 6+I,0
830 pu(INT(((R+(I*RINC))*120000)+.5)/100)
840 RF = R+I*RINC : AF=1 : GO SUB 490
850 P = INT(((PF*(A))+5.000001E-3)*100)/100
860 IF P>10000 : AT 22,1 : PRINT "PAYMENTS TOO LARGE TO DISPLAY" : GO TO 900
870 AT 6+I,29 : pu(P)
880 END FOR I
890 PRINT
900 PRINT ,, "PRESS SPACE BAR TO CONTINUE"
910 IF INKEY$ <> " " : GO TO 910
920 GO TO 220
```

```
 930 REMark - mortgage amortization
 940 CLS : PRINT,,, " MORTGAGE AMORTIZATION PROGRAM "
 950 CLS #4 : BORDER #4,2,4
 960 PRINT #4;" MORTGAGE AMORTIZATION"
 970 PRINT #4;"    - Use This Option To Calculate"
 980 PRINT #4;"      The Principal And Interest"
 990 PRINT #4;"      Paid Over Any 12 Month Period."
1000 PRINT #4
1010 PRINT #4;" NOTE: To Select A Value Or Amount"
1020 PRINT #4;"      Enter The Appropriate Value"
1030 PRINT #4;"      And Press The ENTER Key."
1040 AT 2,0
1050 INPUT "ENTER MORTGAGE AMOUNT ====================> ";A$
1060 AF = A$
1070 IF AF <= 0 : GO TO 1050
1080 INPUT "ENTER INTEREST RATE (1 TO 35 PERCENT) =====> ";IR$
1090 IR = IR$
1100 IF IR<1 OR IR>35 : GO TO 1080
1110 RF = IR/1200
1120 INPUT "ENTER NUMBER OF YEARS (1 TO 35 YEARS) =====> ";Y$
1130 NF = Y$ * 12
1140 IF NF<1 OR NF>420 : GO TO 1120
1150 GO SUB 490
1160 PF = INT((PF+5.000001E-3)*100)/100
1170 PRINT "MONTHLY PAYMENTS ARE ====================> ";PF
1180 PRINT "CALCULATING AMORTIZATION"
1190 loan(0,1) = AF
1200 FOR I = 1 TO NF
1210 loan(I,2) = INT((loan(I-1,1)*RF+5.000001E-3)*100)/100
1220 loan(I,1) = loan(I-1,1)-PF+loan(I,2)
1230 END FOR I
1240 FOR I = 6 TO 23 : AT I,0 : PRINT TO 77
1250 AT 7,9
1260 PRINT "- 1 TO ";NF; "      - 0 TO END AMORTIZATION"
1270 AT 6,1 : INPUT "ENTER BEGINNING PAYMENT NUMBER OF 12 MONTH PERIOD ======> "
     ;PERIOD$
1280 PD= PERIOD$
1290 IF PD <> 0 : GO TO 1320
1300 IF PERIOD$ <> "0" : GO TO 1270
1310 GO TO 220
1320 IF PD<0 OR PD>NF : GO TO 1270
1330 AT 6,1 : PRINT TO 70
1340 AT 7,1 : PRINT TO 70
1350 AT 7,1
1360 PRINT "PYMNT  PRINCIPAL    INTEREST   BALANCE"
1370 TINT = 0
1380 FOR I = PD TO PD+11
1390 IF I> NF : GO TO 1420
1400 TINT = TINT + loan(I,2)
1410 PRINT_USING "### ";I; : pu(PF-loan(I,2)) : pu(loan(I,2)) : pu(loan(I,1))
1420 PRINT : END FOR I
1430 PRINT \ "INTEREST FOR 12 PERIODS ="; : pu(TINT) : PRINT
1440 PRINT \,,,"PRESS SPACE BAR TO CONTINUE";
1450 AT 0,0
1460 IF INKEY$ <> " " : GO TO 1460
1470 GO TO 1240
1480 :
1490 DEFine PROCedure pu(x)
1500 PRINT_USING " ######.##";x;
1510 END DEFine
```

BOOTSORT WITHOUT TK2

The following version of the selective menu-loader (BOOTsortCOPY) may be used without initializing TK2. It automatically shows only Basic titles (any without _ext) in sorted order. It does not have the COPY feature but responds more quickly and may be useful as a boot routine on disks which have both Basic and data files. MDV users should change RAM1_ to drive$ and line 240 flp to mdv.

BOOTsortBAS

```
10 MODE 4
20 FLP_USE flp
30 GO SUB 220: REMark Create DIR file
40 REMark Display menu
50 PAPER 0: INK 7: CLS: PAPER #0,7: INK
#0,0:-CLS #0
60 OPEN_IN #7,'RAM1_' & 'cat_dat'
70 INPUT #7,line$: CLS: PRINT 'CATALOG-'
;line$,: INPUT #7,line$: PRINT line$
80 CLOSE #7
90 PRINT #0\\' Key any CHR to scroll  E
NTER to load'\' N for NEW CATALOG £ for
 SDATE:  ';DAY$;' ';DATE$
100 LET F=1: x=7: Y=2: C=INT(FI/18): DIF
=INT ((FI/18-C)*18+.4): row=1: lop=17
110 LET Q$='p': IT=2: IF lop>=FI THEN lo
p=FI: GO TO 130
120 FOR I=1 TO C: FOR m=0 TO lop: AT row
+m,7: PRINT ,,,: AT row+m,8: PRINT f$(IT
): LET IT=IT+1: NEXT m: GO SUB 160: NEXT
 I: FOR I=1 TO 19: AT I,7: PRINT ,,,: NE
XT I: IF NOT DIF THEN GO TO 110
130 IF F THEN FOR m=0 TO DIF-2: AT row+m
,7: PRINT ,,,: AT row+m,8: PRINT f$(IT):
 LET IT=IT+1: NEXT m: IF lop>=FI THEN F=
0
140 IF NOT F THEN IT=FI
150 GO SUB 160: GO TO 110
160 FOR L=0 TO m: AT row+L,7: PRINT '>':
 FOR k=1 TO 5: NEXT k: IF Q$<>'' THEN FO
R k=1 TO 100: NEXT k: LET Q$=''
170 LET A=CODE(INKEY$): IF A=0 THEN LET
Q$='p': GO TO 170
180 IF A=96 THEN CLS #0: INPUT #0;'mo ';
mm;' da ';dd;' year ';yy\'hr ';hr;' min
';min: sec=0: SDATE yy,mm,dd,hr,min,sec:
 GO TO 40
190 IF A=78 THEN GO SUB 220: GO TO 40
200 IF A=10 THEN GO TO 210: ELSE AT row+
L,7: PRINT ' ': NEXT L: RETurn
210 LET POS=IT+L-m-1: END IF : drive$=dr
ive$ & f$(POS): LRUN drive$
220 CLS #0: PRINT #0; 'CATALOG drive #';
230 drive$=INKEY$: IF drive$<'1' THEN GO
 TO 230: ELSE PRINT #0;drive$
240 drive$='flp' & drive$ & '_'
250 DELETE 'RAM1' & '_cat_dat': OPEN_NEW
 #7,'RAM1_' & 'cat_dat'
260 DIR #7,drive$: CLOSE #7
270 REMark Load DIR from RAM
280 DIM f$(1000,24)
290 OPEN_IN #5,'RAM1' & '_cat_dat'
300 FOR n=0 TO 1000
310 IF EOF(#5) THEN CLOSE #5: LET direnд
=n: GO TO 350
320 INPUT #5,f$(n)
330 clen=LEN(f$(n)): IF clen<4 THEN NEXT
 n: ELSE IF f$(n,clen-3)='_' THEN GO TO
310
340 END FOR n
350 IF CODE(f$(direnд))=0 THEN LET diren
d=direnд-1
360 LET FI=direnд
370 REMark Re-order DIR from RAM
380 PRINT #0;' Please wait for re-orderi
ng'
390 LET m=direnд: s=m: cnt=0
400 LET s=INT(s/2): IF s<1 AND NOT cnt T
HEN GO TO 480
410 IF s/2=INT(s/2) THEN LET s=s+1
420 FOR n=2 TO m-s
430 LET cnt=0
440 LET j=n
450 IF f$(j)>f$(j+s) THEN LET x$=f$(j):L
ET f$(j)=f$(j+s): LET f$(j+s)=x$: LET j=
j-s: LET cnt=cnt+1: IF j>0 THEN GO TO 45
0
460 END FOR n
470 GO TO 400
480 RETurn
900 DELETE flp1_BOOTsortBAS: SAVE flp1_B
OOTsortBAS
910 DEFine PROCedure sv: DELETE flp1_BOO
T: SAVE flp1_BOOT: END DEFine sv
```

International QL Report

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CABLE COLUMN

By Bill Cable

ARCHIVE SERIES
PART 8 : ORDER and SELECT COMMANDS

The ORDER Command was introduced in the last issue of UPDATE. Now we will complete our discussion of it and move on to the SELECT Command. The ability to order on the fields of a database and quickly locate needed information using that order is the most powerful feature of a database system. It repays us for all the effort it takes to organize our information in the record/field format. Although we have covered the general principles of order we need to give a few more examples and also illustrate the difference between ordering a "looked" database versus an "opened" database. Next we will explore the SELECT Command which allows us to make temporary subgroups of our database by specifying certain criteria about the fields.

Before getting into that let's celebrate the fact that this series is marking the end of its second year. During that time, UPDATE has provided a reliable soap box for me to stand on preaching the virtues of this excellent database system. I even hear from time to time that the column is being read and used. I have tried to make the series easy for beginners to join at any time but soon we will start building on what we have covered and begin writing ARCHIVE programs. The best kind of programs for this column to cover are ones that will be useful to its readers. Please feel free to request programs covering subjects of interest to you. For those wanting a complete collection of the series, back issues of UPDATE are still available and here is an issue index :

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Altogether it comprises 20 pages of practical ARCHIVE tips gained through extensive experience. It should prove invaluable to anyone wanting to use ARCHIVE. Maybe you don't have time to seriously tackle ARCHIVE right now but if you have the issues the information will be there when you need it. That is why its important to keep supporting UPDATE, IQLR and User Group publications. Information gets collected in a nice format so we have it when we need it. I would also like to encourage others to write more for these publications. I have never read a QL related article that didn't give me some useful information and insight. Never feel that your experiences are too insignificant to share. How hard is it write an article? Load QUILL and put down your thoughts. Save it to a disk or microdrive. Send it to the intended publication and you will have made one editor's day.

PREPARATION

In the description below I will "*italic*" what you should enter to participate in the examples. We will use the OPEN command on the GAZET_DBF database supplied with ARCHIVE and permanently change it so make sure you use a copy and not your master. Start ARCHIVE (DATABASE) and go through the following collection of commands as a refresher. *<ENTER>* means press the ENTER key :

look "{}gazet"<ENTER>	{}=device,mdv1_,flp1_, etc
print count()<ENTER>	see how many countries
print recnum()<ENTER>	current record number
display<ENTER>	display current record
find "nassau" <ENTER>	find something
print recnum()<ENTER>	current record number
next<ENTER>	move forward one
display<ENTER>	see current record again
search pop>=100<ENTER>	field meeting condition
continue<ENTER>	next one
order pop,a<ENTER>	order by population
locate 100<ENTER>	locate on population
let a=50<ENTER>	
locate a<ENTER>	use variable with locate

ORDER COMMAND (continued)

In Part 7 we covered the basics of the ORDER Command. We saw that we can quickly define one order for an ARCHIVE database using 1,2,3, or 4 fields. It is usually not useful to order on more than 2 fields. If we had an address database with fields for last name and first name it is easy to see that it would be handy to have order by last name and then first name so we could separate people with the same last name but different first names. Having only one order available at any given time is a handicap. PSION's PC version of ARCHIVE can keep 4 sets of order active at the same time and is the one big advantage of PC ARCHIVE over QL ARCHIVE. For a book catalog database it would be nice to be able to look up by title or author at a moments notice. With QL ARCHIVE we can have it ordered on one or the other. If we want a different order we have to execute the ORDER Command and wait for a short time for the new order to be completed. Let us order GAZET by continent and population and play with that :

order continent$,a,pop,d<ENTER>	
locate "EUROPE",1000<ENTER>	most populous first
next<ENTER>	population decreases
<F5><ENTER>-	
locate "ASIA",100<ENTER>	first ASIA under 100
locate "E"<ENTER>	first EUROPE

```
locate "EUROPE"<ENTER>     just beyond EUROPE
```
These are tricky because there are two fields in the order and the second field, pop, is ordered in descending order. Try the same order command only replace the "d" after pop by an "a" and try the same commands. Leaving out the 2nd field in locate defaults to 0 or null.

One property of an ARCHIVE database is that whatever order existed under the last OPEN access will be the one that is in effect the next time the database is "looked" or "opened". If you only ordered the database when it was accessed by "look" then no order is in effect when it is first accessed. Try the following :

```
close<ENTER>                    close GAZET_DBF
open "{}gazet"<ENTER>           device (mdv1_,flp1_,etc)
order country$;a<ENTER>         make a permanent order
close<ENTER>
look "{}gazet"<ENTER>
locate "D"<ENTER>               locates by country
order capital$;a<ENTER>         make new order
locate "D"<ENTER>               now locates by capital
close<ENTER>
look "{}gazet"<ENTER>
locate "D" <ENTER>              order by country still on
reset<ENTER>                    remove all order
locate "D"                      error 8 since no order
close<ENTER>-
```

What I find useful for each database is to define the primary (permanet) order (most commonly needed order) with the database accessed with OPEN. Then I define other orders and select or reset only while looking at the database so I never remove the primary order. To get my primary order I only need close and look or open again (usually faster than reordering a large database). Any order in effect is maintained while adding, altering, or deleting records. Only the RESET or ORDER commands will alter the current order. Remember that there is no way to tell what the current order is. You must keep track of that yourself.

SELECT COMMAND (FILTERING)

The SELECT command allows one to select a subgroup from the currently selected records. It has the form :

select (field condition1) and/or (field condition2) ....etc.

Each field condition evaluates to a numeric expression usually a logical statement (0 is false, nonzero true). When a database is first accessed all records are selected. Each time a select command is executed some records can be filtered out depending on the select condition. Any order in effect when a selection is made remains in place after the selection. If a reset is done to make all records active again then all order is lost. If the database is being "looked" at then any permanent order made when it was "opened" will still remain when it is re-accessed again.

```
look "{}gazet"<ENTER>  {}=device mdv1_,flp1_, etc
print count()<ENTER>   all records active
display<ENTER>         display current record
locate "D"<ENTER>      country order active
select pop>20<ENTER>   countries with population>20
print count()<ENTER>   see how many now active
display<ENTER>
locate "D"<ENTER>      no "D" so "EGYPT"
select continent$="ASIA"<ENTER>
print count()<ENTER>
display<>ENTER>
next<ENTER>
<F5><ENTER>
```
(repeat until end is reached)

We ended up with all Asian countries with a population of greater than 20 million still ordered by country. We could have done the selection in one statement :

```
reset:print count()<ENTER>
select pop>20 and continent$="ASIA"<ENTER>
print count()<ENTER>
display<ENTER>
```

We could use an or statement to get quite another subgroup

```
reset<ENTER>
select pop>20 or continent$="ASIA"<ENTER>
print count()<ENTER>
```

Now we have all countries with a population greater than 20 million or in Asia. Using the INSTR() function allows for interesting options (see pg 51 ARCHIVE manual).

```
reset<ENTER>
select instr(languages$, "ENGLISH")<ENTER>
print count()<ENTER>
display<>ENTER>
```

Now we have selected all countries which have English as a major language. A quick way to see all selected records uses the ALL statement which will be described later :

```
all:sprint:endall<ENTER>
```

You noticed that "ENGLISH" appeared somewhere in the Languages$ field. The INSTR() function allows us to make use of that even though other words may also appear in the field. We could see the same records although not select them using the SEARCH Command which uses syntax similar to the SELECT Command :

```
reset<ENTER>
search instr(languages$, "ENGLISH")<ENTER>
while found():sprint:continue:endwhile<ENTER>-
```

The WHILE Command will be covered later but is illustrated to show ARCHIVE has many tools available.

The SELECT Command is a powerful tool that allows the user to temporarily work with a subgroup of the database meeting specified conditions. Using the EXPORT Command (described later) the subgroup can even be exported to be its own database if desired.

Next time we look at the UPDATE Command and WHILE Command and write some single line programs. Until then Happy Archiving!

USING QUILL FOR ASCII FILES

Bob Hartung, 2416 N. County Line Road, Huntertown, IN 46748

One of the features of QUILL (WP) that somehow got lost in the translation of the v.12/84 QLUG is that ASCII files may be saved and loaded using the PRINT and IMPORT modes, respectively. By using XOVER or a similar program, files may be translated to DOS in this format, which a DOS line-editor and most wordprocessors will accept.

This facility may also be used to create DO files and source code for compilers, as well as a means of providing full-screen editing for those who do not have the TOOLKIT ED capability.

Since the process re-directs to storage media the output that ordinarily would go to the printer, the printer_dat which is used must first be amended for this purpose. An easy way of doing this is to CLONE QUILL and its data files to a new disk or mdv cartridge. The _HOB file may then be deleted to make more room if desired.

Enter LRUN flp1_INSTALL_BAS (or mdv1_) and key ENTER to accept the SER1 and flp1_ or mdv1_ prompts. At the menu move the cursor to OTHER and key F2 for EDIT. Rename OTHER to PROGRAM (key the right-cursor to go to entry mode), set LINEFEED to LF only, and toggle CONTINUOUS FORMS to YES. When done, key F5 to install this driver. Key ESC or RESET to return to Basic.

If you want to access the printer_dat file from RAM1 instead of drive one each time PRINT is called, it will be necessary to run the CONFIG_BAS program and reset the location of SYSTEM files to RAM1_ so the program will look there for the printer data. (Refer to CONVERT_BAS to reconfigure v. 2.35.) After doing this, load the BOOT routine and insert this command in a line preceding the EXEC call: COPY flp1_printer_dat TO RAM1_ printer_dat (or use COPY mdv1_ ....) Use this copy of BOOT, QUILL, and data whenever you load in or save ASCII files.

To simplify creating new files, set up a dummy file on this disk or mdv with LEFT margin, INDENT, UPPER and BOTTOM margins, PAGE size, and line GAP all set to zero, and RIGHT margin set to 80. Source code files require this, and files in a DOS wordprocessor may then be re-formatted more easily. Page headers and footers will also be output with ASCII text files unless turned off or the page size is pre-set to zero.

Load this dummy file whenever creating a QUILL file that will be output as ASCII data. Keep in mind that F4 and other command-codes will be stripped from the text data when it is saved as ASCII code. Some imbedded TRANSLATE characters may remain but will not be recognized by a DOS wordprocessor, and of course should not be used in Basic, or DO, or source code files. Set JUSTIFY to left margin and do not use wrap-around lines in source code files, Basic or DO listings.

Having done all this, to save a file in ASCII from this QUILL format simply key F3, P for PRINT, ENTER for current file, ENTER for whole file, and when the "to printer" prompt appears, enter the filename of eight characters or less. Note that _lis is appended to files saved in this manner, which you probably would want to omit for DO and Basic files by renaming them after they have been saved. (A RESET must be done before calling a DO routine if QUILL or another EXEC program has been used previously.)

To IMPORT (load in) an ASCII file or Basic or DO listing it must also have or be renamed to a filename with the _lis suffix. Key F3 twice for COMMAND II then F for Files and I for Import. Enter the filename, including _lis, then at the prompt for type of input, select Line.

To use the XOVER program supplied with PC Conqueror, first use RESET, then execute the program with EXEC flp1_XOVER. Place a pre-formatted DOS disk in drive 1 and your QDOS ASCII file disk in drive 2. Key CTRL C to activate XOVER and follow the menu prompts for "Export files (QDOS → DOS)". Since it is accepted practice to give DOS text files the suffix .TXT you may want to use the DOS REN command to rename files for easier recognition.

I did not have a PC or clone to test these ASCII files in a DOS wordprocessor like Word, WordPerfect, or WordStar but they worked fine for me under PC Conqueror, using Spinnaker EZ-Writer with spellcheck and the Disk-Count EDIT line-editor, as well as the DOS EDLIN routine.

```
25Ø IF A=96 THEN CLS #Ø: INPUT #Ø;'mo ';
mm;' da ';dd;' year ';yy\'hr ';hr;' min
';min: sec=Ø: SDATE yy,mm,dd,hr,min,sec:
 GO TO 4Ø
26Ø IF A=78 THEN GO SUB 29Ø: GO TO 4Ø
27Ø IF A=1Ø THEN GO TO 28Ø: ELSE AT row+
L,7: PRINT ' ': NEXT L: RETurn
28Ø LET POS=IT+L-m-1: END IF : drive$=dr
ive$ & ct$(POS): LRUN drive$
29Ø CLS #Ø: IF cpy$="C" THEN PRINT #Ø;'
COPY from catalog in drive #';: ELSE PRI
NT #Ø; 'CATALOG drive #';
3ØØ drive$=INKEY$: IF drive$<'1' THEN GO
 TO 3ØØ: ELSE PRINT #Ø;drive$
31Ø INPUT #Ø\' <ENTER> for PROGS only, o
r leading chrs. in title(s) or extension
'\' EG: <CHRS> <_doc> <_dbf> <_lis> <_da
t> for wildcard DIR ';suff$
32Ø drive$='flp' & drive$ & '_': wdr$=dr
ive$ & '_' & suff$
33Ø OPEN_OVER #7,'RAM1_' & 'cat_dat'
34Ø WDIR #7,wdr$: CLOSE #7
35Ø OPEN_OVER #7,'RAM1_' & 'cat_nm'
36Ø DIR #7,drive$: CLOSE #7
37Ø OPEN_IN #7,RAM1_cat_nm: INPUT #7,cnm
$: CLOSE #7
38Ø IF cpy$="C" THEN GO TO 4ØØ: ELSE PRI
NT #Ø\\" RE-ORDER y/n? "
39Ø yn$=INKEY$:IF yn$<'1' THEN GO TO 39Ø
4ØØ IF cpy$="C" THEN yn$="y"
41Ø REMark Load DIR from RAM
42Ø DIM f$(1ØØØ,24)
43Ø OPEN_IN #5,RAM1_cat_dat
44Ø FOR n=Ø TO 1ØØØ
45Ø IF EOF(#5) THEN CLOSE #5: LET direnд
=n: GO TO 49Ø
46Ø INPUT #5,f$(n)
47Ø clen=LEN(f$(n)): IF clen<4 THEN NEXT
 n: ELSE IF suff$="" AND f$(n,clen-3)='_
' THEN GO TO 45Ø
48Ø END FOR n
49Ø IF CODE(f$(direnд))=Ø THEN LET diren
d=direnд-1
5ØØ IF yn$=='y' THEN GO TO 51Ø: ELSE GO
TO 62Ø
51Ø REMark Re-order DIR from RAM
52Ø PRINT #Ø;' Please wait for re-orderi
ng'
53Ø LET m=direnд: s=m: cnt=Ø
54Ø LET s=INT(s/2): IF s<1 AND NOT cnt T
HEN GO TO 62Ø
55Ø IF s/2=INT(s/2) THEN LET s=s+1
56Ø FOR n=Ø TO m-s
57Ø LET cnt=Ø
58Ø LET j=n
59Ø IF f$(j)>f$(j+s) THEN LET x$=f$(j):L
ET f$(j)=f$(j+s): LET f$(j+s)=x$: LET j=
j-s: LET cnt=cnt+1: IF j>Ø THEN GO TO 59
Ø
6ØØ END FOR n
61Ø GO TO 54Ø
62Ø REMark Re-save DIR to RAM1
63Ø IF cpy$="C" THEN GO SUB 72Ø
64Ø OPEN_OVER #5,RAM1_cat_dat
65Ø PRINT #5,cnm$: PRINT #5," "
66Ø FOR n=Ø TO direnд
67Ø IF CODE(f$(n,1))=Ø THEN GO TO 69Ø
68Ø PRINT #5,f$(n)
69Ø END FOR n
7ØØ CLOSE #5
71Ø RETurn
72Ø REMark COPY source drive 1_ TO dest
drive 2_
73Ø CLS
74Ø AT 1Ø,Ø: PRINT 'Place SOURCE media i
n drive 1 & DEST media in drive 2'\'Key
F to format drive 2 media'\'Press any ot
her key to start copying'
75Ø fdt$=INKEY$: IF CODE(fdt$)=Ø THEN GO
 TO 75Ø
76Ø IF fdt$=="F" THEN CLS: CLS #Ø: INPUT
 #Ø\\' ALL DATA WILL BE LOST ON DRIVE 2
-- Key ENTER to abort FORMAT'\' or enter
 DRIVE 2 format title: ';fdt$: IF fdt$="
" THEN GO TO 74Ø: ELSE PRINT #Ø;'Please
wait -- FORMATTING ';fdt$: FORMAT "flp2_
" & fdt$: CLS #Ø: GO TO 74Ø
77Ø FOR n=Ø TO direnд
78Ø IF CODE(f$(n,1))=Ø THEN GO TO 8ØØ
79Ø COPY flp1_ & f$(n) TO flp2_ & f$(n)
8ØØ END FOR n
81Ø RETurn
9ØØ SAVE flp1_BOOTsortCOPY
91Ø DEFine PROCedure sv: SAVE flp1_BOOT:
 END DEFine sv
```

A COMPOSITE BOOSTER

-- Bob Hartung --

If the composite output signal from your QL or 2068 does not seem to be at the proper level to provide a steady display on your monitor, you might want to consider inserting the video output of a VCR dubbing enhancer between the computer composite video output jack and the monitor composite input jack. I have had good results with the RECOTON ($29 + S&H from DAMARK or C.O.M.B.) but any with an adjustable video gain control, such as the one sold by Radio Shack, should do as well. Please note that because of the many possible variables in usage and equipment I cannot accept responsibility for any damages or undesirable results.

MECHANICAL AFFINITY

For the best prices on QL related items in North America and an honest attempt to fill your order contact Frank Davis at MECHANICAL AFFINITY, 513 East Main, Peru, IN 46970, or Paul Holmgren at MECHANICAL AFFINITY, 5231 Wilton Wood Ct, Indianapolis, IN 46254. Examples of prices and items to be found there! All prices quoted are in US dollars.

GOLD CARDS, disk interface, 2 meg of memory and your QL running at 16 mHz, 3 disk drives can be used, and uses the 1.44 meg, 3.2 meg drives as well as the 360K and 720K drives, and for only $500 + $10 for insurance.

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A SELECTIVE MENU-LOADER

Bob Hartung, 2416 N. County Line Rd. E., Huntertown, IN 46748

On QL utility disks which contain both Basic and data files, this program provides for the display of only the type of titles selected for an auto-loading menu, in sorted or unsorted order. By changing line 310 to LET suff$="" and line 390 to LET yn$="y" it may be used as a BOOT routine that brings up only file titles for Basic programs or DO files. Selected types of files may be copied in sorted order from drive 1 to drive 2. Because it utilizes the WDIR command, TOOLKIT II is required.

The program assumes that a convention is followed in using a three-character extension following an underscore for all data file titles, eg: _doc _dbf _lis _txt etc. Basic or DO titles either have no such extension or else more or less than three characters follow any underscore in them.

The program may be used on any drive, as selected when it comes up. Next, an entry is prompted for the wild card set of characters to be used by the WDIR command. If ENTER only is keyed, only the files will be shown that have no three-character extension in their titles. If an underscore does not precede characters used in a wild card set then a directory will be shown of all titles having that set as the beginning of the title or as the beginning of an extension.

It may be noted that a DIR file (cat_nm) is stored in RAM1 as well as a WDIR file (cat_dat). The reason for this is that WDIR does not provide disk format and title information when used in this manner, so the title is extracted from this DIR file and the rest is discarded.

A NOTE RE: DIRDATCOPY

Because of a quirk in the way the QL handles the field-lengths of previously-used array elements, the sorting and COPY routines may give uncertain results. To correct this, change line 750 of the DIRdatCOPY routine to correspond with line 590 of this listing, and line 930 should be revised to correspond with line 790 in this listing. Sorry about that!

Also, in case you missed it in Frank's comments in the 1/92 UPDATE, line 120 of the printed DIRdatCOPY listing should be ... GOTO 210 instead of ... GOTO 220. All these corrections and BOOTsortCOPY will be included in my QL ISSUE disk if purchased after 3/1/92.

BOOTsortCOPY

```
1 TK2_EXT: REMark May be omitted if TK2
activated previously
10 MODE 4
20 FLP_USE flp: REMark Or FLP_USE mdv
30 cpy$="": GO SUB 290
40 PAPER 0: INK 7: CLS: PAPER #0,7: INK
#0,0: CLS #0
50 DIM ct$(1000,24)
60 OPEN_IN #7,'RAM1_' & 'cat_dat'
70 INPUT #7,line$: CLS: PRINT 'CATALOG-'
;line$
80 FOR x = 0 TO 1000
90  IF EOF(#7): LET FI=x: GO TO 130
100   INPUT #7,ct$(x)
110    clen=LEN(ct$(x)): IF clen<4 THEN
NEXT x: ELSE IF suff$="" AND ct$(x,clen-
3)='_' THEN GO TO 90
120  END FOR x
130 CLOSE #7
140 IF CODE(ct$(1))=0 THEN PRINT "NO ";s
uff$;" FILES FOUND": GO TO 20
150 PRINT #0\\' Key any CHR to scroll
ENTER to load   C to copy sorted files'\
' N for NEW CATALOG £ for SDATE:  ';DAY
$;' ';DATE$
160 LET F=1: x=7: Y=2: C=INT(FI/18): DIF
=INT ((FI/18-C)*18+.4): row=1: lop=17
170 LET Q$='p': IT=1: IF lop>=FI THEN lo
p=FI: GO TO 190
180 FOR I=1 TO C: FOR m=0 TO lop: AT row
+m,7: PRINT ,,,: AT row+m,8: PRINT ct$(I
T): LET IT=IT+1: NEXT m: GO SUB 220: NEX
T I: FOR I=1 TO 19: AT I,7: PRINT ,,,: N
EXT I: IF NOT DIF THEN GO TO 170
190 IF F THEN FOR m=0 TO DIF-2: AT row+m
,7: PRINT ,,,: AT row+m,8: PRINT ct$(IT)
: LET IT=IT+1: NEXT m: IF lop>=FI THEN F
=0
200 IF NOT F THEN IT=FI
210 GO SUB 220: GO TO 170
220 FOR L=0 TO m: AT row+L,7: PRINT '>':
 FOR k=1 TO 5: NEXT k: IF Q$<>'' THEN FO
R k=1 TO 100: NEXT k: LET Q$=''
230 LET A=CODE(INKEY$): IF A=0 THEN LET
Q$='p': GO TO 230
240 LET cpy$="": IF A=67 THEN cpy$="C":
GO SUB 290: GO TO 40
```

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NESQLUG DEMONSTRATES NEW QL EXTENSION

NESQLUG (New England Sinclair QL User Group) demonstrated at their April meeting a new extension called PROD developed in collaboration with Computation Genetics Corp. of Chelsea, Massachusetts. The new program utilizes a breakthrough Bio-Genetic Thermo-Plastic (BGTP) developed by CGC.

The material has electrical conductivity properties which can be channelled to the serial port (comms port) of a computer. The PROD extension interprets signals from a sensor pad (PROD PAD) made from BGTP. In conjunction with the extension this permits heuristic interpretation of the user's needs when operating other computer software.

CGC executive, Dr. R. Ida bin Phulen, and his assistant, Candice B. Reel, demonstrated the prototype. The user operated a number of unfamiliar software titles without reference to manuals by placing a hand on the pad, exercising great concentration and applying Body English. Remarkably, in 85% of attempts the user's desired effects were input to the QL. More surprisingly, the demonstrator, although told that the program's function was word-processing, formatted three paragraphs of justified word-wrapped text in ABACUS as quickly as if it had been done in QUILL.

PROD is an extension that presently takes 10 parameters including the user's Sweat Salinity Factor, Body Language Profile Index, handedness (Left or Right), personality type (A or B) and latitude and longitude of place of birth.

Dr. Phulen, who heads the CGC product development team, is a reknowned computer high-achiever, informally acknowledged to be descended from Victorian poet and all-round genius, Lord Byron, on his father's side and from the explorer, Richard Burton, on his mother's.

"Initially, we selected the Sinclair QL because it was cheap," admitted Dr. bin Phulen. **"Subsequently, in attempting to transfer the concept to other computers, we find that these results are only possible on an unexpanded QL with a JSU ROM. Our software team suspects that PROD utilizes extraneous code relating to the unfinished WHEN ERRor function on that ROM. Rumors that only a British computer can respond to Body English are premature"**

PROD will be released to the public domain as soon as the team are sure that the computer will not retaliate if it is input at too high an EOR (emotional overload rate). **"We see this development as a major breakthrough in Artificial Intelligence. Our sole interest is the commercial application of the sensor pad,"** explained Dr. bin Phulen. **"Whether or not Graphic User Interfaces and mice will be made obsolete remains to be seen."**

It is expected that when commercial release commences in July, 1993, the sensor pad will retail for about $400.00. A scurrilous rumor that a discount drug store bandage works just as well was traced to a Silicon Valley firm. CGC attorneys are reviewing legal options. PROD and its source code will be freely available through NESQLUG, at P.O. Box 8763, Boston MA 02114.

Computation Genetics received commercial and military grants of $75 million grant to develop Bio-Genetic Thermo-Plastic applications on April 1, 1992.

NOTES FROM EMSOFT

In the last issue of update, we summarized the Dilwyn Jones titles that we stocked. As a result of an onset of the flu, the description of **SUPER DISK INDEX** ommitted an essential feature: the directory of files in the index is automatically read in by the software from the disk's directory. That is, once SDI is running, it automatically adds all the file names on a disk inserted in the designated drive.

We take off our CATS hat in admiration to all who have ordered this program to date under the mistaken assumption that each file name had to be key-punched individually!

TAX-I-QL/91 has been cancelled. As of mid-February only eight orders had been received. Customers checks were returned. We don't know if the reason is that the program is not useful, if no one who owns a QL needs Form 1040, or if we did not advertise the program enough. In any case, we couldn't justify the time and cost of even writing eight manuals.

If there is interest for a TAX-I-QL/92, please let us know at the EMSoft address in the ad elsewhere in this issue.

HOWEVER, the good news is that we now have **text87 plus4.** Yes, it's expensive, but cheaper than DP's **PERFECTION.** The cursor is faster, overwrite mode is supported, and Function keys behave like Quill's, for easy transition. But it's the bells and whistles that set it apart. On-line help instead of a fat manual, multiple documents in memory, moveable windows for prompts and help, document previewing before printing. Great for the person who takes the appearance of documents seriously.

QL GENEALOGIST has a second edition, keeping it ahead of every other family tree program for any computer. A neat feature is the ability to export to ABACUS utilizing spreadsheet cells as a surrogate family tree.

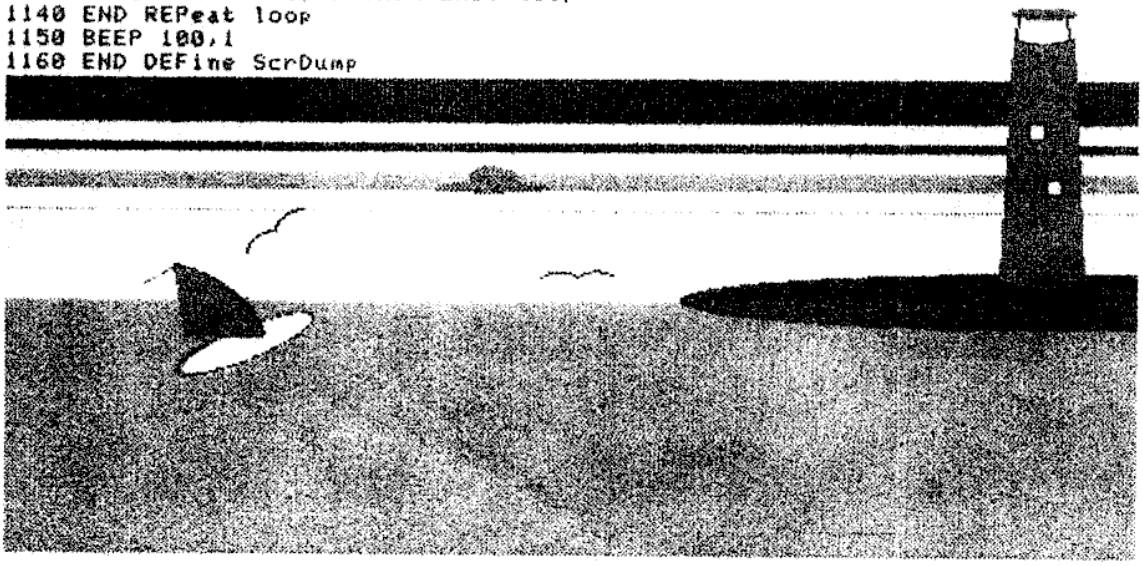
LIGHTHOUSE, QL GRAPHICS
by Taylor Penrose

"Enclosed please find my first of many contributions to the QL community. This screen and dump was created for a CGP 220 color ink jet printer produced by Radio Shack, so I can not say if it will work on any other color printer to do a screen dump. I am still working on an eight color and may end up using Pixel 6 in a loop. For those with different printers it will at least provide a starting point."

(Editors Notes) I think this short type in program is a marvelous way to get some of our readers started or helped in using their QL to produce screens or graphics without the aid of an art program. Study the listing and look for the REM lines, as these will tell you what is being created on the program lines upto the next REM line. You can later take each of these segments and use them by their self to see what effect they create on their own. Then try changing the parameters given and see the result. Ah!!!!, this is not "heavy" programming, just fun.

For those who have enjoyed this little exercise and want to further explore graphics and screen dumps on the QL, we have two things that come to mind. One, we hope to see more from Taylor Penrose on this and related subjects in the near future. Second is to study the manual that came with the QL. While what we find in there is sparse, many of us have learned just enough about our machines that if we were to now get out that old manual that we got lost on when we first got our QL, we would see that it makes more sense to us now. Not perfect, mind you, just more sense than it first did. Have fun with your computing, like most subjects we encounter in life it should be kept light, so that it is just one more of lifes enjoyments.

```
100 WINDOW 512,202,0,0 :PAPER 7 :OVER 1 :CLS :CSIZE 0,0 :SCALE 100,0,0
110 WINDOW #0,512,54,0,202 :PAPER #0,4,7 :INK #0,0 :CLS #0
200 REMark  == Ocean ==
210 INK 4,7 :FILL 1
220 LINE 0,0 TO 0,30 ;190,0 TO 190,30
300 REMark  == DarkRed sky ==
310 INK 2,0,2 :LINE 0,70 TO 0,80 ;190,70 TO 190,80
320 LINE 0,65 TO 0,63 ;190,65 TO 190,63 :FILL 0
400 REMark  == LightRed Sky ==
410 INK 2,7 :FILL 1
420 LINE 0,50 TO 190,50 ;0,55 TO 0,59 ;190,55 TO 190,59
500 REMark  == Grey Cloud ==
510 INK 255
520 FILL 1 :CIRCLE 80,55,10,9E-2,RAD(90) ;80,57,3 ;83,57,2 :FILL 0
600 REMark  == Gulls ==
610 INK 0 :ARC 40,40 TO 45,45,-PI/2 TO 50,50,-PI/2 ;89,35 TO 95,35,-PI/2 TO 101,35,-PI/2
700 REMark  == Sail Board ==
710 FILL 0 :INK 0 :CIRCLE 40,20,13,.25,RAD(120) :REMark Board Shadow
720 FILL 1 :INK 7 :CIRCLE 40,20,12,.25,RAD(120) :FILL 0 :REMark Board
730 INK 0 :FILL 1:ARC_R 3,2.5 TO -15,15,PI/3 :REMark Mast & Sail
740 INK 3 :LINE_R TO 2,-15 TO 13,-,5 :FILL 0 :INK 4 :LINE_R -15,15 TO -5,-3,5
750 INK 0 :FILL 0 :ARC 40,30 TO 30,22,-PI/4 :REMark Boom
900 REMark == LIGHTHOUSE ==
910 INK 7 :OVER -1 :FILL 1 :CIRCLE 172,30,60,.1,PI/2
920 INK 0,4 :FILL 1 :CIRCLE 172,30,60,.1,PI/2 :OVER 1 :REMark Island
930 INK 2 :FILL 1 :LINE 165,35 TO 167,90 ;179,35 TO 177,90 :ARC 165,35 TO 179,35,PI/3    :IN
K 7 :FILL 1 :ARC 167,90 TO 177,90,PI/3 :REMark Tower
935 INK 0 :FILL 0 :LINE 167.5,89 TO 168,95 ;176.5,89 TO 176,95 :ARC 167.5,89 TO 176.5,89,PI
/3
940 INK 2 :FILL 1 :CIRCLE 172,95,5.5,.2,-PI/2 :REMark Top
950 BLOCK 8,8,470,85,0 :BLOCK 6,6,471,86,7 :RENark window
960 BLOCK 8,8,462,60,0 :BLOCK 6,6,463,61,7 :REMark window
970 FILL 0 :OVER 0 :INK 0 :SBYTES MDV1_LightHouse_Scrn,131072,32768
980 PAPER #0,0 :INK #0,7 :CLS #0 :STOP
990 REMark -----=<=>=+++++++++ High Resolution Dump *********+=>=<=------
1000 DEFine PROCedure ScrDump
1010 DIM dat$(3,64)
1020 screen=131072
1030 OPEN #3,ser1hc
1040 REPeat loop
1050 FOR col=1 TO 64
1060   dat$(2,col)=CHR$(PEEK(screen)) :REMark Green
1070   dat$(1,col)=CHR$(PEEK(screen+1)) :REMark Red
1080   dat$(3,col)=CHR$(PEEK(screen)&&PEEK(screen+1)) :REMark Blue
1090   screen=screen+2
1100 END FOR col
1110 PRINT #3,CHR$(27)&"C"&CHR$(64);
1120 FOR n=1 TO 3:PRINT #3,dat$(n,1 TO);
1130 IF screen)=163839 THEN EXIT loop
1140 END REPeat loop
1150 BEEP 100,1
1160 END DEFine ScrDump
```



INTERNATIONAL QL REPORT

The Definitive Information Source

If you had been a subscriber during the last year you would have received advanced information on the latest hardware developments for the QL, including the **QL HDD-Card, FLP/RAM level 2 Replacement Eprom,** the new **Miracle Systems Graphics Card, Minerva, Exeqtor** and the **QL ROM-Card.** Articles contributed by QL Users from around the world included, How to Setup the 3.2 Meg. Floppies, Programming in "C", P.D. Software, Program Listings, A Multi-part Toolkit II Tutorial, Tips & Hints, and Reviews of Software. In addition, subscribers were offered the opportunity to participate in **Group Buys** of hardware at substantial savings. These buys, included **Gold Cards, 3.2 Meg. Drives, Keyboard Interfaces** and **32K Buffer Chips for Panasonic Printers.**

As we enter our second year and continue to grow, we hope you'll grow with us.

The International QL Report is published 4 - 6 times per year, and is available from SeaCoast Services, 15 Kilburn Court, Newport, RI 02840. Subscription rates are $14.95 in U.S., $16.95 in Canada, and $28.00 for the rest of the world (U.S. funds only please).

QL Hacker's Journal

Supporting All QL Programmer's

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PRINTED CIRCUIT BOARD DEVELOPMENT PROGRAM

INSTRUCTION MANUAL PROGRAM CAD#3

For EPSON 9 pin printers or equivalent

Using LKDOS Disk Operating System

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The WIDJUP Co. is proud to present the most powerful, flexible, and user friendly printed circuit board design program available for the TIMEX TS2068 as of this date.

It lets ambitious people create their own electronic hardware without demanding access to industrial facilities or photo laboratories.

At the same time, this program does fully professional work suitable for small industry. Though CAD#3 is self-contained, it is compatible with several specialized companion utilities like "TRACE MASTER", which writes DATA FILES for CAD#3 using higher level graphic language.

The WIDJUP Co.
1120 Merrifield S.E.
Grand Rapids, MI 49507
Tel: (616) 452-7004

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INTRODUCTION

This program makes use of LARKEN LKDOS. This version is for EPSON and compatible 9-pin printers. Versions are available for OLIVETTI INKJET, EPSON compatible printers, and using JLO SAFE DOS. Fine results are obtained with the OLIVETTI PR2300, which provides total black-white contrast without needing a brand new printer ribbon. CAD#3 makes use of file types Program, Data, and Code. Files created using CAD#3 are transferable to other DOS systems via tape. The other system must be able to store the same type records.

Though this program assumes double density 2 sided, 5 1/4 disks, other formats are readily accommodated by changing default parameters.

All operations are menu supported, system initialization is automatic, and no LKDOS commands are required once the program is loaded.

The ability to monitoring your work as it proceeds is provided by a DISPLAY feature. This saves much time, paper, and aggravation.

Operations have been made as easy to use as can be, considering the complexity of the task at hand. The temptation to unnecessarily standardize operations (thus limiting what your ingenuity can accomplish) has been resisted. No compromise has been taken with quality of results. Best use of printer performance is made, though this creates a heavy computation load for the computer. If you want superior results, you have to do the work!

Exceptional editing procedures let you avoid doing work over and over again. Now THAT is user friendly!

EXTENDED FEATURES

CAD#3 provides several features in addition to what is available in LKDOS extended BASIC. To be specific, WIDJUP programs LPRINT #5, LLIST #5 (Which does formatted and indented LISTings), screen dumps, and several graphic windows for LPRINTing-single and double size lines.

They say that nothing is fool-proof to a sufficiently talented fool. Well, CAD#3 has been designed to require considerable talent to foul it up, AND to recover even if it has been. Error trapping is used extensively.

DISPLAY is limited to 4 x 5.4 inches. This does not prevent making boards longer than 5.4 inches. It is simply not possible to DISPLAY the whole board at once.

MENUS

MAIN MENU

```
The WIDJUP Co.  (C) 1989..CAD#3
          MAIN MENU
FUNCTION        DESCRIPTION
-------------------------------
1  LOAD         PCB Data Array
2  CREATE       New PCB
3  EDIT         PCB Data Array
4  DISPLAY      PCB
5  DIRECTORY    Drives 0-4
6  REPORT       LPRINT Data
7  GENERATE     PCB Image
8  COPY         From Image File
9  SAVE         PCB Data Array
```

Select by # " "

This is what you see after CAD#3 is loaded. It reappears after selected operations are completed.

```
  1 ON ERR  GO TO 9885: GO TO Main
 12 LET a=INT a1: IF a<0 THEN  LET a=0
 13 IF a>879 THEN  RETURN
 14 LET b=INT (b1-1): IF a>b THEN  RETURN
 15 IF b>879 THEN  LET b=879
 16 LET c=INT (a/256): LET a=a-256*c: LET d=INT (b/256): LET b=
b-256*d
 17 LET s=f-8*c: IF c=d THEN  PLOT a,s: DRAW b-a,0: RETURN
 18 PLOT a,s: DRAW 255-a,0: LET s=s-8: GO TO 22+c-d
 19 PLOT 0,s: DRAW 255,0: LET s=s-8
 20 PLOT 0,s: DRAW 255,0: LET s=s-8
 21 PLOT 0,s: DRAW b,0
 22 RETURN
 44 LET j=z(kk+1,7)
 45 GO SUB 12: IF j<2 THEN  RETURN
 46 LET j=j-1: LET A1=A1+y(kk,8): LET B1=B1+y(kk,8): GO TO 45
100 IF y>y(kk,5) THEN  GO TO 201
101 LET a1=y(kk,2): LET b1=y(kk,3): GO TO 44
120 IF y>y(kk,5) THEN  GO TO 201
121 LET a=(y(kk,5)+y(kk,6))/2: LET c=y(kk,4): LET b=y(kk,13): L
ET s=b+y(kk,12)*(y-a): LET a1=s-c: LET b1=s+c: GO TO 44
130 IF y>y(kk,5) THEN  GO TO 201
131 LET d=y(kk,2): LET j=y(kk,3): LET c=y(kk,4): LET a=(y(kk,5)
+y(kk,6))/2: LET b=y(kk,13)
132 LET s=b+y(kk,12)*(y-a)
133 LET a1=s-c: IF a1<d THEN  LET a1=d
134 LET b1=s+c: IF b1>j THEN  LET b1=j
135 GO TO 44
140 LET b=(y(kk,5)+y(kk,6))/2: LET c=y(kk,4): LET d=y-b: LET s=
(1-d*d/c/c): IF y>y(kk,5) OR s<z THEN  GO TO 201
141 LET a=y(kk,13): LET s=c*k1*SQR s: LET a1=a-s: LET b1=a+s: G
O TO 44
150 LET b=(y(kk,5)+y(kk,6))/2: LET c=y(kk,4): LET d=y-b: LET s=
(1-d*d/c/c): IF y>y(kk,5) OR s<z THEN  GO TO 201
151 LET a=y(kk,13): LET s=c*k1*SQR s: IF s>y(kk,12) THEN  LET s
=y(kk,12)
152 LET a1=a-s: LET b1=a+s: GO TO 44
160 LET b=(y(kk,5)+y(kk,6))/2: LET c=y(kk,4): LET d=y-b: LET s=
(1-d*d/c/c): IF y>y(kk,5) OR s<z THEN  GO TO 201
161 LET s=c*y(kk,3)*SQR s
162 LET a=y(kk,13): LET a1=a-s: LET b1=a+s: GO TO 44
170 LET c=y(kk,4): LET d=y-y(kk,6)-y(kk,12): LET s=1-d*d/c/c: I
F y>y(kk,5) OR s<z THEN  GO TO 201
172 LET s=c*y(kk,3)*SQR s
173 LET a=y(kk,13): LET a1=a-(s AND y(kk,2)>3): LET b1=a+(s AND
 (y(kk,2)<5)): GO TO 44
201 LET Del=y(kk,10): LET y(kk,5)=y(kk,5)+Del: LET y(kk,6)=y(kk
,6)+Del: LET y(kk,9)=y(kk,9)-1: RETURN
205 GO SUB 225: LET t=INT ((ff/32) AND Uflag): LET y=32*t-i: LE
T kk=z
206 GO SUB 225: LET t=t+i: IF NOT Uflag THEN  GO TO 212
209 LET h$=f$( TO 1i1)+STR$ t+".CZ": RANDOMIZE USR LK: GO TO Gd
rive: POKE 23728,LK: RANDOMIZE USR LK: LOAD h$ CODE : RANDOMIZE
USR LK: GO TO Drive
212 FOR L=z TO 31: LET y=y+i: IF y<ff THEN  GO TO 217
213 LET f=175-L-24*INT (L/8): LET u=0: LET kk=0
214 LET u=u+1: IF y(u,9) THEN  IF y>y(u,6) THEN  LET kk=u: INVE
```

```
RSE y(u,11): GO SUB y(u,1)
 215 IF u<Last THEN  GO TO 214
 216 IF NOT kk THEN  GO SUB 225
 217 NEXT L: INVERSE z
 218 IF Gmode=ii OR Gmode=iv THEN  GO SUB 500
 219 IF Gmode>ii THEN  LET h$=f$( TO iii)+STR$ t+".CZ": PRINT AT
 11,16;h$,AT 15,16;"Scale= ";Scale: RANDOMIZE USR LK: GO TO Gdri
ve: RANDOMIZE USR LK: SAVE h$ CODE 16384,4112: RANDOMIZE USR LK:
 GO TO Drive
 220 CLS : PRINT AT 18,ii;f$;"*";scale'" Frame #";t;" done."
 221 LET s=0: FOR n=1 TO Last: LET s=s+y(n,9): NEXT n: IF NOT s
THEN  LET Uflag=z: RETURN
 222 IF (t=76 OR t=152) AND Gmode>ii THEN  GO SUB 9093
 223 GO TO 206
 225 LET ff=4096: LET s=1
 226 IF y(s,9) THEN  IF y(s,6)<ff THEN  LET ff=y(s,6)
 227 IF s<Last THEN  LET s=s+1: GO TO 226
 228 LET ff=ff AND ff>0: RETURN
 300 FOR n=z(i,i) TO here STEP -i: FOR k=i TO 11: LET z(n+ii,k)=
z(n+i,k): NEXT k: NEXT n: LET z(i,i)=z(i,i)+i: RETURN
 302 FOR n=here TO z(i,i)-i: FOR k=i TO 11: LET z(n+i,k)=z(n+ii,
k): NEXT k: NEXT n: LET z(z(i,i)+i,1)=z: LET z(i,i)=z(i,i)-i: IF
 here>z(i,i) THEN  LET here=z(i,i)
 303 RETURN
 305 PRINT  INK 8; PAPER 8;AT ii,11;"LAST ";z(i,i);"  ";AT ii,xx
;"SELECT     ";AT ii,27;Here;: FOR k=left TO left+iv: LET b=6*(k
-left)+2: LET d=k+1: LET c=(z(d,6)-1) AND (z(d,1)=10): PRINT AT
4,b;k;"  ";AT 5,b;Q$(z(d,1)+1+c);
 306 FOR n=1 TO 11: LET a=INT (z(k+1,n)*1000): PRINT  INK 1+(k=H
ere)+(6 AND k>z(1,1));AT n+6,b;a/1000: NEXT n: NEXT k
 307 PLOT 0,168: DRAW 0,-150: DRAW 254,0: DRAW 0,150: DRAW -254,
0: RETURN
 450 LPRINT "¦G89;32;22;2¦Z";: RANDOMIZE USR (Ld0+47): RETURN
 451 LPRINT "¦/¦G89;32;22;2¦Z";: RANDOMIZE USR (Ld0+47): RETURN
 453 POKE ld1,64: POKE ld2,64: POKE ld3,8: POKE ld4,128: POKE ld
5,80: LPRINT "¦G89;64;1;3¦Z";: RANDOMIZE USR (Ld0+45): RETURN
 500 POKE ld1,110: POKE ld2,128: POKE ld3,32: POKE ld4,0: POKE l
d5,64: LPRINT "¦G1;110;4;1¦Z";: RANDOMIZE USR 27040: RETURN
1200 RETURN
1210 LET a=z(ss,v)/ii: LET b=(z(ss,iii)+z(ss,iv))/ii: LET c=ABS
(b-z(ss,iv))
1211 LET y(n,i)=LK: LET y(n,ii)=(b-c)*kY: LET y(n,iii)=(b+c)*kY:
 LET y(n,v)=(z(ss,ii)+a)*kX-i/ii: LET y(n,six)=(z(ss,ii)-a)*kX+i
/ii: GO TO rr
1220 LET b=z(ss,ii): LET c=z(ss,v)/ii: LET a=(z(ss,iii)+z(ss,iv)
)/ii: LET d=ABS (z(ss,iii)-z(ss,iv))/ii
1221 LET y(n,i)=LK: LET y(n,ii)=(b-c)*kY: LET y(n,iii)=(b+c)*kY:
 LET y(n,v)=(a+d)*kX-i/ii: LET y(n,six)=(a-d)*kX+i/ii: GO TO rr
1230 LET b=z(ss,ii): LET d=z(ss,iv)/ii: LET c=z(ss,v)/ii
1231 LET y(n,i)=LK: LET y(n,ii)=(b-d)*kY: LET y(n,iii)=(b+d)*kY:
 LET y(n,v)=(z(ss,iii)+c)*kX-i/ii: LET y(n,six)=(z(ss,iii)-c)*kX
+i/ii: GO TO rr
1240 LET b=z(ss,ii)
1241 LET y(n,i)=160: LET y(n,iii)=z(ss,v)*k1: LET y(n,iv)=z(ss,i
v)*kX: LET y(n,v)=(z(ss,iii)+z(ss,iv))*kX-i/ii: LET y(n,six)=(z(
ss,iii)-z(ss,iv))*kX+i/ii: GO TO rr
1250 LET a=(z(ss,iv)+z(ss,ii))/ii: LET c=(z(ss,iv)-z(ss,ii))/ii:
 LET d=z(ss,v)/ii: LET b=z(ss,iii)+c*SGN d: LET w=ABS c+ABS d
1251 LET y(n,i)=130: LET y(n,ii)=(b-w)*kY: LET y(n,iii)=(b+w)*kY
: LET y(n,iv)=(ABS d)*kD-i/ii: LET y(n,v)=(a+w)*kX-i/ii: LET y(n
```

```
,six)=(a-w)*kX+i/ii: LET y(n,12)=k1*SGN d: GO TO rr
1260 LET a=(z(ss,iv)+z(ss,ii))/ii: LET c=(z(ss,iv)-z(ss,ii))/ii:
 LET d=z(ss,v)/ii: LET b=z(ss,iii)+c*SGN d: LET w=ABS c+ABS d
1261 LET y(n,i)=120: LET y(n,ii)=z: LET y(n,iii)=879: LET y(n,iv
)=(ABS d*kD)-i/ii: LET y(n,v)=(a+w)*kX-i/ii: LET y(n,six)=(a-w)*
kX+i/ii: LET y(n,12)=k1*SGN d: GO TO rr
1270 LET c=z(ss,ii): LET a1=z(ss,iii): LET d=z(ss,iv): LET b1=z(
ss,v): IF c=d OR a1=b1 THEN  GO TO 1310
1271 LET a=(a1+b1)/ii: LET b=(c+d)/ii: LET Tan=(b1-a1)/(d-c): LE
T d=ABS (d-c)/ii: LET c=ABS (b1-a1)/ii
1272 LET w=z(ss,six)/ii: LET An=ATN Tan: LET Sin=SIN An: LET ew=
ABS (w*Sin): LET eh=w*COS An
1273 LET y(n,i)=130: LET y(n,ii)=(b-d-ew)*kY: LET y(n,iii)=(b+d+
ew)*kY: LET y(n,iv)=ABS (w/Sin*kY)-i/ii: LET y(n,v)=(a+c+eh)*kX-
i/ii: LET y(n,six)=(a-c-eh)*kX+i/ii: LET y(n,12)=k1/Tan: GO TO r
r
1280 LET b=z(ss,ii): LET a=z(ss,iii): LET h=z(ss,iv)
1281 IF h<=z THEN  GO TO 1310
1282 LET y(n,i)=140: LET y(n,iv)=h*kX: LET y(n,v)<(a+.74*h)*kX-i
/ii: LET y(n,six)=(a-.75*h)*kX+i/ii: GO TO rr
1290 LET b=z(ss,ii): LET a=z(ss,iii): LET h=z(ss,iv)
1291 IF h<=z THEN  GO TO 1310
1292 LET y(n,i)=150: LET y(n,iv)=h*kX: LET y(n,v)=(a+h)*kX-i/ii:
 LET y(n,six)=(a-h)*kX+i/ii: LET y(n,12)=.75*h*kY: GO TO rr
1300 LET b=z(ss,ii): LET a=z(ss,iii): LET c=z(ss,iv): LET d=z(ss
,v): LET w=z(ss,six): LET a1=(w>i AND w<7): LET b1=w>v OR w<iii
1301 LET y(n,i)=170: LET y(n,ii)=w-(iv AND w=8): LET y(n,iii)=d*
k1: LET y(n,iv)=c*kX: LET y(n,v)=(a+(c AND b1))*kX-(.5 AND b1):
LET y(n,six)=(a-(c AND a1))*kX+(.5 AND a1): LET y(n,12)=(c*kX-i/
ii) AND a1
1302 LET y(n,7)=z(ss,7): LET y(n,8)=z(ss,8)*kY: LET y(n,9)=z(ss,
9):-LET y(n,10)=z(ss,10)*kX: LET y(n,11)=z(ss,11): LET y(n,13)=b
*kY: RETURN
1310 PRINT AT 10,iii;" BAD DATA. ITEM #";ss-i;" ";: PAUSE z: ON
ERR  GO TO Main: LET n=n/z
3020 CLS : PRINT "    WIDJUP DATA LOAD SERVICE      Drive ";Ddri
ve,,"";AT iv,ii;"DATA ARRAYS are usually stored on DRIVE 0."''"
 Enter new drive #  or simply  ENTER to accept."
3021 ON ERR  RESET : INPUT "Drive #? ";I$: IF I$="" THEN  LET n=
Ddrive: GO TO 3023
3022 ON ERR  GO TO 3021: LET n=VAL I$: ON ERR  RESET : LET Ddriv
e=n
3023 CLS : PRINT "    WIDJUP DATA LOAD SERVICE    ": RANDOMIZE U
SR LK: GO TO n: RANDOMIZE USR LK: CAT "^.AZ",: PRINT AT i,z;"  D
rive ";Ddrive;": "; OVER i;"",,"";AT 18,z;"Extension .AZ will be
 appended.   ENTER to  QUIT "
3024 INPUT "Which ? ";I$: IF LEN I$=z THEN  RETURN
3028 LET F$=I$+".AZ": RANDOMIZE USR LK: LOAD I$+".AZ" DATA z():
RANDOMIZE USR LK: GO TO drive
3029 LET here=1: RETURN
3041 IF z(i,i)=z THEN  GO TO 3060
3042 CLS : PRINT AT 8,8;" WARNING  "'" File ";f$;" is present."
'" Continuing will destroy file.": INPUT "Continue? Y/n ";I$: I
F I$="Y" OR I$="y" THEN  DIM z(100,11): LET f$="No Data": GO TO
3060
3043 PRINT '" CANCELLED": RETURN
3060 LET here=here-(here AND f$="No Data"): LET q$=" ::::Xx:::::
:::::::"
3061 GO SUB SE: GO TO HK
3063 INVERSE p5: PLOT p1,p2: DRAW p3,p4: INVERSE z: RETURN
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3064 PLOT p1,p2: DRAW p3,z: DRAW z,p4: DRAW -p3,z: DRAW z,-p4: R
ETURN
3065 CIRCLE p1,p2,p3: RETURN
3066 PLOT p1,p2: DRAW p3,p4: RETURN
3067 PLOT p1,p2: DRAW i,iii: DRAW i,-iii: DRAW -i,-iii: DRAW -i,
iii: RETURN
3068 PLOT p1,p2: DRAW iii,i: DRAW iii,-i: DRAW -iii,-i: DRAW -ii
i,i: RETURN
3069 LET c=PI/ii: LET a=INT ((p7-1)/ii): LET b=INT (p7/ii)+i: FO
R k=a*c TO b*c STEP 1/p3: PLOT p1+p3*COS k,p2+p3*SIN k: NEXT k:
RETURN
3080 GO SUB 4010
3081 FOR n=ii TO z(i,i)+i
3082 PRINT AT 18,z;"#";n-i: LET a=z(n,i): IF a=z THEN  PRINT AT
11,5; OVER i;" BAD or NO DATA "
3083 IF a=i THEN  LET p1=L*z(n,ii)+xo: LET p2=L*z(n,iii)+yo: LET
 p3=z: LET p4=L*(z(n,4)-z(n,iii)): LET p5=z(n,11): LET bb=3063
3084 IF a=ii THEN  LET p1=L*z(n,iii)+xo: LET p2=L*z(n,ii)+yo: LE
T p3=L*(z(n,4)-z(n,iii)): LET p4=z: LET p5=z(n,11): LET bb=3063
3085 IF a=iii THEN  LET p2=L*z(n,ii): LET p1=L*z(n,iii): LET p4=
L*z(n,4): LET p3=L*z(n,5): LET p2=p2-p4/ii+yo: LET p1=p1-p3/ii+x
o: LET bb=3064
3086 IF a=iv THEN  LET p1=L*z(n,iii)+xo: LET p2=L*z(n,ii)+yo: LE
T p3=L*z(n,4): LET bb=3065
3087 IF a=v OR a=six THEN  LET p1=L*z(n,ii)+xo: LET p2=L*z(n,iii
)+yo: LET p3=L*(z(n,4)-z(n,ii)): LET p4=SGN z(n,5)*p3: LET bb=30
66
3088 IF a=7 THEN  LET p4=L*(z(n,4)-z(n,ii)): LET p3=L*(z(n,5)-z(
n,iii)): LET p1=L*z(n,iii)+xo: LET p2=L*z(n,ii)+yo: LET bb=3066
3089 IF a=8 THEN  LET p1=L*z(n,iii)-i+xo: LET p2=L*z(n,ii)+yo: L
ET bb=3067
3090 IF a=9 THEN  LET p1=L*z(n,iii)-iii+xo: LET p2=L*z(n,ii)+yo:
 LET bb=3068
3091 IF a=10 THEN  LET p1=L*z(n,iii)+xo: LET p2=L*z(n,ii)+yo: LE
T p3=L*z(n,4): LET p7=z(n,6): LET bb=3069
3092 LET yy=p2: LET b2=z(n,7): LET a2=z(n,9): LET a3=b2
3093 ON ERR  GO TO 3094: GO SUB bb: LET p2=p2+L*z(n,8): IF b2>1
THEN  LET b2=b2-1: GO TO 3093
3094 ON ERR  GO TO 3095: LET p2=yy: LET b2=a3: LET p1=p1+L*z(n,1
0): IF a2>1 THEN  LET a2=a2-1: GO TO 3093
3095 ON ERR  RESET : NEXT n: RETURN
3100 CLS : PRINT "     WIDJUP DIRECTORY SERVICE      DRIVE     TYPE
 ",,""
3101 PRINT '"   0      DISK DRIVE"''"    1      DISK DRIVE"''"    2
    DISK DRIVE"''"    3      DISK DRIVE"''"    4      RAMDISK"''"
5     QUIT "
3102 PRINT '"   Fault conditions are sensed"," and displayed for
 your action."
3103 ON ERR  RESET : INPUT "SELECT ";I$: IF NOT LEN I$ THEN  LET
 I$="5"
3104 ON ERR  GO TO 3103: LET n=VAL I$: ON ERR  RESET : IF n<z OR
 n>5 THEN  GO SUB Err: GO TO 3103
3105 IF n=5 THEN  RETURN
3106 IF n=4 THEN  GO TO 3118
3107 PRINT AT 18,0,,,,,,,,: OUT 8,2^(n+1): OUT 16,208: PAUSE 10:
 OUT 16,0: PAUSE 90: LET tst=IN 16: IF tst-2*INT (tst/2) THEN  P
RINT AT 20,2;"DRIVE NOT AVAILABLE": PAUSE 120: GO TO 3100
3108 OUT 16,95: PAUSE 90: LET tst=IN 16: IF tst-2*INT (tst/2) TH
EN  PRINT AT 18,2;"DRIVE IS NOT READY"'" Check for open door, mi
ssing or inverted disk.  Correct problem and CONTinue.": OUT 8,4
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: PAUSE 10: OUT 8,3: STOP : GO TO 3107
3109 LET bit=INT (tst/64): IF bit-2*INT (bit/2) THEN  PRINT AT 1
8,2;"(DISK IS WRITE PROTECTED)": PAUSE 60
3110 LET bit=INT (tst/16): IF bit-2*INT (bit/2) THEN  PRINT AT 1
9,2;"UNFORMATTED OR FOREIGN DISK"," Insert correct formatted dis
k  and CONTinue.": STOP : GO TO 3107
3118 CLS : PRINT "    WIDJUP DIRECTORY SERVICE    ": RANDOMIZE U
SR LK: GO TO n: RANDOMIZE USR LK: CAT "",: PRINT AT i,z;"  Drive
 ";n;": "; OVER i;"",,"";
3119 RANDOMIZE USR LK: GO TO drive: RETURN
3120 INPUT "Comment, Date? ";a$:  LPRINT #5'"DATA REPORT.. ";a$
3121 GO SUB 3080: GO SUB 451: LPRINT CHR$ 10
3122 LET Last=Z(i,i): FOR L=ii TO Last+i: PRINT AT xx,z,,,,AT xx
,z;: LET c=L-1: GO SUB 3128: RESTORE z(L,i)+3200: READ i$: PRINT
  INVERSE z(L,11);" ";I$;" ";: PRINT " ";: READ k: FOR k=ii TO k
+i: READ I$: PRINT I$;: PRINT z(L,k);: NEXT k: GO SUB 3129
3123 PRINT TAB 30;"[x,y][";z(1,9);"*";z(1,7);"], Pitch[";z(1,10)
;";";z(1,8);"]": GO SUB 3129
3124 IF c=28 OR c=73 THEN  LPRINT '''''
3125 NEXT 1: PRINT "END OF DATA",,,,: GO SUB 3129: RETURN
3128 PRINT " " AND c<LK;" " AND c<10;c;"  ";: RETURN
3129 GO SUB 453: PRINT AT xx,z,,,,AT xx,z;: RETURN
3140 ON ERR  RESET : CLS : PRINT "    WIDJUP GENERATE SERVICE
  "'''"  0   QUIT "'''"  1  Screen Only"'''"  2  LPRINT"'''"  3  FIL
E"'''"  4  LPRINT & FILE"
3141 INPUT "Select by # ";I$: ON ERR  GO TO 3140: LET Gmode=VAL
("0"+I$): ON ERR  RESET : IF Gmode<z OR Gmode>iv THEN  GO TO 314
1
3142 PRINT '"   Mode is #";Gmode'''"  0.73 Scale will print an"''"
 overlay matching the REPORT."
3143 IF NOT gmode THEN  PRINT '''"CANCELLED": RETURN
3144 RANDOMIZE USR LK: LOAD "y().A1" DATA y(): LET Uflag=z: IF g
mode>ii THEN  INPUT "New or Update? ";I$: IF LEN I$ THEN  IF I$(
 TO i)="U" OR I$( TO i)="u" THEN  LET Uflag=i
3145 IF NOT Uflag THEN  INPUT "SCALE? ";Scale: GO TO 3148
3146 LET i$=f$( TO iii)+"1.CZ": RANDOMIZE USR LK: GO TO Gdrive:
RANDOMIZE USR LK: LOAD i$ CODE
3147 LET i$="": FOR n=22 TO 28: LET i$=i$+SCREEN$ (15,n): NEXT n
: LET Scale=VAL i$
3148 LET kY=Scale*110: LET kX=kY/k1: LET kD=kY*1.414: PRINT #1;"
      WORKING "
3149 LET Last=z(i,i): FOR n=i TO Last: LET ss=n+i: LET nn=z(n+i,
i): IF nn<i  OR nn>10 OR nn<>INT nn THEN  PRINT AT 21,six;"BAD D
ATA AT ";3000+n;"": STOP : RETURN
3150 LET Mode=1200+10*nn: GO SUB Mode: NEXT n: CLS : GO TO 205
3161 CLS : RANDOMIZE USR LK: GO TO Gdrive: RANDOMIZE USR LK: CAT
 "^.CZ",
3162 INPUT "FILE(no ext)?";I$;"  Count? ";bb: LET I$=I$+"    ":
LET I$=I$( TO iii): CLS
3163 FOR L=i TO bb: LET H$=I$+STR$ L+".CZ"
3164 PRINT AT 18,z: POKE 23728,LK: RANDOMIZE USR LK: LOAD H$ COD
E
3165 IF PEEK 23728=LK THEN  GO TO 3168
3166 IF PEEK 23728=(LK+i) THEN  IF L=77 OR L=153 THEN  PRINT AT
18,ii;" INSTALL NEXT DISK ": GO SUB 9094: PRINT AT 18,0,,,,,,,,:
 GO TO 3164
3167 RANDOMIZE USR LK: GO TO drive: RETURN
3168 GO SUB 500: NEXT L
3169 RANDOMIZE USR LK: GO TO drive: RETURN
3180 ON ERR  RESET :  CLS : PRINT "      WIDJUP SAVE SERVICE
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```
    Existing File is ";F$,""
3181 PRINT '"" 1  KEEP SAME NAME"''" 2  RENAME FILE (1-6 CHR$)"
'"    (Extension .AZ is provided.)"''" 3  QUIT ": IF F$="No Data
" THEN  PRINT ''" NO FILE EXISTS TO SAVE ": RETURN
3182 INPUT "Select by # ";I$: ON ERR  GO TO 3180: LET a=INT VAL
("0"+I$): ON ERR  RESET : IF a<1 OR a>3 THEN  GO TO 3180
3183 IF a=3 THEN  RETURN
3184 IF a=1 THEN  LET I$=F$: GO TO 3187
3185 INPUT "File Identifier? ";I$: LET I$=I$+".AZ": PRINT AT xx,
12;I$: IF LEN I$<4 OR LEN I$>9 THEN  PRINT "INVALID FILE NAME, T
RY AGAIN": PAUSE 120: GO TO 3180
3186 LET F$=I$
3187 PRINT AT 20,3;" SAVING ";I$;"",: RANDOMIZE USR 100: SAVE I$
 DATA z(): PRINT AT 20,3;I$;" SAVED",,: RETURN
3201 DATA "¦",iv,"X0=",";  Y=","  to ",";  Width="
3202 DATA "¦",iv,"Y0=",";  X=","  to ",";  Width="
3203 DATA "¦",iv,"Y0=",",X0=",";  H=",",  W="
3204 DATA "¦",iv,"Y0=",",  X0=",",  Rx=",",  Ry/Rx="
3205 DATA ("¦" AND z(1,v)<z)+("¦" AND z(1,v)>z),iv,"X1=",",  Y1="
,";  X2=",";  Width="
3206 DATA ("¦" AND z(1,v)<z)+("¦" AND z(1,v)>z),iv,"X1=",",  Y1="
,";  X2=",";  Width="
3207 DATA "¦",v,"Y1=",",  X1=",";  Y2=",",  X2=",";  Width="
3208 DATA "¦",iii,"Y0=",",  X0=",";  Rad="
3209 DATA "¦",iii,"Y0=",",  X0=",";  Rad="
3210 DATA CHR$ (155+z(1,six)),v,"X0=",",  Y0=",";  Rx=",";  Ry/Rx="
,";  Quad="
3230 CLS : PRINT "      WIDJUP EDIT SERVICE","""''" 1  ¦  Line","
 7  ¦  Jog"''" 2  ¦  Line"," 8  ¦  Jog"''" 3  ¦  Box"," 9  ¦  Sl
ant"''" 4  ¦  Circle","10  ¦  Pad"''" 5  ¦  45 Deg","11  ¦  Pad"
''" 6  ¦  45 Deg","12  ¦` Quadrant"''" Items oriented as they a
ppear  DISPLAYED, not as printed."
3231 INK 2: FOR n=0 TO 5: PLOT 30,62+16*n: DRAW 0,11: DRAW 11,0:
 DRAW 0,-11: DRAW -11,0: NEXT n: FOR n=0 TO 5: PLOT 158,62+16*n:
 DRAW 0,11: DRAW 11,0: DRAW 0,-11: DRAW -11,0: NEXT n: INK 0: RE
TURN
3301 DATA "¦","   1  At X=","   2     Y=","   3  To Y=","   4 Wi
dth=","      -----"
3302 DATA "¦","   1  At Y=","   2     X=","   3  To X=","   4 Wi
dth=","      -----"
3303 DATA "¦","   1  At Y=","   2     X=","   3 HighY=","   4 Wi
deX=","      -----"
3304 DATA "¦","   1  At Y=","   2     X=","   3    Rx=","   4 Ry
/Rx=","      -----"
3305 DATA "¦","   1 From X=","   2       Y=","   3   To X=","   4
  Width=","      -----"
3306 DATA "¦","   1 From X=","   2       Y=","   3   To X=","   4
  Width=","      -----"
3307 DATA "¦","   1 From X=","   2       Y=","   3   To X=","   4
  Width=","      -----"
3308 DATA "¦","   1 From X=","   2       Y=","   3   To X=","   4
  Width=","      -----"
3309 DATA "¦","   1 From Y=","   2 From X=","   3   To Y=","'   4
   To X=","   5  Width="
3310 DATA "¦","   1  At Y=","   2     X=","   3 Radius=","      -
----","      -----"
3311 DATA "¦","   1  At Y=","   2     X=","   3 Radius=","      -
----","      -----"
3312 DATA CHR$ (155+z(c,6)),"   1  At Y=","   2     X=","   3
 Rx=","   4 Ry/Rx=","   5  Quad="
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4010 CLS : LET L=40: LET yo=12: LET xo=36: PLOT xo-i,yo+161: DRA
W z,-162: DRAW 214,z: DRAW z,162: DRAW -214,z: PRINT AT z,iii;"4
";AT 5,iii;"3";AT 10,iii;"2";AT 15,iii;"1";AT XX,iii;"0";AT 21,4
;"0    1    2 >X 3    4    5";AT 12,ii;"Y"'"  ^";
4011 FOR n=12 TO 173 STEP 4: PLOT 33,n: DRAW ii,z: PLOT 249,n: D
RAW ii,z: NEXT n: FOR n=36 TO 248 STEP 4: PLOT n,9: DRAW z,ii: P
LOT n,173: DRAW z,ii: NEXT n
4012 FOR n=i TO LEN f$: PRINT  PAPER 5;AT n,i;f$(n): NEXT n: PRI
NT AT 20,z;: RETURN
4060 IF z(i,i)<i THEN  LET F$="No Data"
4061 BORDER 7: CLS : PRINT '"      WIDJUP EDIT SERVICE"," ";F$,,
""
4062 PRINT AT xx,i;"ESCFIXSELADD < PUTCUT > MAPDEL";AT 21,i;" 1
 2  3  4  5  6  7  8  9  0 "
4063 FOR N=7 TO 230 STEP 24: PLOT n,z: DRAW z,16: DRAW 24,z: DRA
W z,-16: DRAW -24,z: NEXT N
4064 REM spare
4065 LET left=here-ii: IF left<i THEN  LET left=i
4066 PRINT AT 7,z,,,
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4905 DATA i,i,1.5,.02,z,i,z,i,z,z
4906 DATA i,i,1.5,-.02,z,i,z,i,z,z
4907 DATA i,i,1.5,.02,z,i,z,i,z,z
4908 DATA i,i,1.5,-.02,z,i,z,i,z,z
4909 DATA ii,i,i,ii,.02,i,z,i,z,z
4910 DATA i,i,.04,z,z,2,.3,7,.1,z
4911 DATA i,i,.04,z,z,7,.1,2,.3,z
4912 DATA i,i,.04,i,5,i,z,i,z,z
5000 GO SUB ST: LET z(i,i)=z(i,i)+i: LET here=z(i,i)
5001 ON ERR  RESET : INPUT "Select by # ";I$
5002 ON ERR  GO TO Add+i: LET a=VAL ("0"+I$): ON ERR  RESET : IF
 a<i OR a>12 THEN  GO SUB Err: GO TO Add+1
5003 LET c=here+i: LET fixx=z: RESTORE 4900+a: FOR n=2 TO 11: RE
AD a1: LET z(c,n)=a1: NEXT n
5004 LET g$="0102030405050606070809l0": LET cc=a+a-1: LET z(c,i)
=VAL (g$(cc TO cc+1)): IF a=6 OR a=8 THEN  LET z(c,5)=-z(c,5)
5005 LET cc=a: GO TO Fix+1
5010 LET c=here+i: LET fixx=i: DIM e(11): FOR n=i TO 11: LET e(n
)=z(c,n): NEXT n: LET cc=e(i): LET cc=cc+(i AND cc>5)+(i AND cc>
6)+(i AND (cc=5 OR cc=6) AND e(5)<z): IF here<1 THEN  GO SUB Err
: GO TO WE
5011 CLS : RESTORE 3300+cc: GO SUB 4500
5012 ON ERR  RESET : INPUT "Select ";I$: IF I$="" THEN  GO SUB E
rr: GO TO Fix+ii
5013 LET a1=I$( TO i)="0": IF (a1 AND Fixx=i) THEN  FOR n=i TO 1
1: LET z(here+i,n)=e(n): NEXT n: GO TO SE
5014 IF (a1 AND Fixx=z) THEN  LET z(here+i,i)=z: LET z(i,i)=z(i,
i)-i: LET here=z(i,i): GO TO SE
5015 ON ERR  GO TO Fix+ii: LET a=VAL I$: ON ERR  RESET : IF a<1
OR a>11 THEN  GO SUB Err: GO TO Fix+ii
5016 IF a=11 THEN  GO TO 5022
5017 ON ERR  RESET : LET Row=a+4: PRINT AT Row,16; OVER i;"
";AT Row,16;: INPUT "Value=";I$
5018 ON ERR  GO TO 5021: LET bb=VAL ("0"+I$): ON ERR  RESET : IF
 a=4 THEN  IF cc=6 OR cc=8 THEN  LET bb=-ABS bb
5019 IF cc=12 AND a=5 THEN  IF bb<1 OR bb>8 THEN  GO SUB Err: GO
 TO Fix+ii
5020 LET z(c,a+i)=bb: PRINT bb;"    ";: GO TO 5012
5021 ON ERR  RESET : GO SUB Err: GO TO 5017
5022 IF f$<>"No Data" THEN  GO TO SE
5023 ON ERR  RESET : INPUT "FILE NAME (less.AZ ext)? ";f$
5024 IF f$="" OR LEN f$>six THEN  GO SUB Err: GO TO 5023
5025 LET f$=f$+".AZ": GO TO SE
6000 FOR n=1 TO 20: FOR l=1 TO 10: PRINT AT n-1,l+l+l-3;CODE j$(
n,l): NEXT l: NEXT n: STOP : GO TO 6000
7770 GO SUB 7771: FOR j=1 TO 159: POKE LD0+j-1,CODE U$(j): NEXT
j: RANDOMIZE USR (LD0+49): LET Wa=PEEK 23631+256*PEEK 23632: LET
 Wc=INT (LD0/256): POKE Wa+15,LD0-256*Wc: POKE Wa+16,Wc: RETURN
7771 LET LD0=26995: GO SUB 7776: RETURN
7776 LET Wld=INT (Ld0/256): LET Wlm=Ld0-256*Wld: LET Ld1=Ld0+76:
 LET Ld2=Ld1+5: LET Ld3=Ld2+7: LET Ld4=Ld3+2: LET Ld5=Ld4+1: LET
 Window=Ld0+45: RETURN
8100 CLS : PRINT " IMAGE FILE COPY SERVICE"''" Insert SOURCE dis
k in drive 0, formatted DESTINATION disk in   drive 1. (Empty or
 Matching)": PAUSE 0
8102 RANDOMIZE USR 100: GO TO 0: RANDOMIZE USR 100: CAT "^.CZ",
8104 INPUT "Filename? ";F$;" From: ";from;"'To: ";to
8106 CLS : FOR n=from TO to: LET h$=f$( TO 3)+STR$ n+".CZ": PAUS
E 40: RANDOMIZE USR 100: GO TO 0: RANDOMIZE USR 100: LOAD h$ COD
E
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8108 PAUSE 40: RANDOMIZE USR 100: GO TO 1: RANDOMIZE USR 100: SA
VE h$ CODE 16384,4096
8110 NEXT n
8140 STOP : GO TO 8100
8995 ON ERR  RESET : CLS : PRINT AT 10,4;" Initializing CAD.BO "
;: LET s=1: LET u=s: LET kk=s: LET a=s: LET b=s: LET c=s: LET d=
s: LET f=s: LET a1=s: LET b1=s: LET j=s: FOR L=s TO s: NEXT L: L
ET ff=s: LET ee=44: LET aa=201: LET i=s: LET w=s
8996 LET k1=111/216: LET z=s-s: FOR n=s TO s: NEXT n: FOR k=s TO
 s: NEXT k: LET e=s: LET g=s: LET h=s
8997 LET ii=i+i: LET iii=ii+i: LET iv=ii+ii: LET v=iv+i: LET six
=v+s: LET xx=iv*v: LET drive=z: LET Gdrive=i: LET Ddrive=drive:
LET Here=s
8998 LET Main=9000: LET Me=9006: LET Err=Me+i: LET Key=Err+i: LE
T Dump=451: LET SR=3000: LET SE=4060: LET WE=4065: LET ST=3230:
LET SD=6000: LET WD=6000: LET HE=305: LET HK=4070: LET ADD=5000:
 LET FIX=5010: LET jj=449: LET rr=1302
8999 DIM z(100,11): LET F$="No Data": LET LK=100: RANDOMIZE USR
LK: LOAD "CAD.CU"CODE : RANDOMIZE USR LK: LOAD "PmodO.A$" DATA u
$(): GO SUB 7770
9000 ON ERR  RESET : INVERSE z: PAPER 7: INK z: BORDER 6: CLS :
PRINT " The WIDJUP Co. (C)1989..CAD#2                MAIN MENU"," F
UNCTION","DESCRIPTION","": PRINT '" 1  LOAD","PCB Data Array"'"
 2  CREATE","New PCB"'" 3  EDIT","PCB Data Array"'" 4  DISPLAY-
","PCB"'" 5  DIRECTORY","Drives 0-4"'" 6  REPORT","LPRINT Data
"'" 7  GENERATE","PCB Image"'" 8  COPY","From Image File"'" 9
  SAVE","PCB Data Array"
9001 INPUT "SELECT by # ";I$: IF I$="" THEN  GO TO Me
9002 IF I$="q" OR I$="Q" THEN  STOP : RANDOMIZE USR 100: LOAD "S
HELL.Bw"
9003 ON ERR  GO TO Me: LET n=VAL I$: ON ERR  RESET : IF n>9 OR n
<i THEN  GO TO Me
9004 GO SUB SR+xx*n
9005 GO SUB Key: GO TO Main
9006 ON ERR  RESET : GO SUB Err: GO TO Main+i
9007 PRINT #i;AT z,z;" BAD INPUT.  TRY AGAIN. ": PAUSE 60: PRINT
 #i;AT z,z,,: RETURN
9008 PRINT #i;AT z,six;" PRESS ANY KEY ";: PAUSE z: RETURN
9093 PRINT AT xx-ii,i;" DISK FULL. INSTALL ANOTHER. "'"   Enter
""GO"" when ready.": RANDOMIZE USR LK: GO TO Drive: FOR n=1 TO 8
: BEEP .3,10: BEEP .3,22: NEXT n
9094 INPUT "Enter ""GO"" when ready.";W$: IF LEN W$<2 THEN  GO T
O 9096
9095 IF W$( TO 2)="GO" THEN  RANDOMIZE USR LK: GO TO Gdrive: RET
URN
9096 GO SUB Err: GO TO 9094
9500 FOR n=i TO xx: GO SUB 9501: PAUSE z: NEXT n: STOP : GO TO 9
500
9501 RESTORE 9502: CLS : PRINT "GROUP ";n,'': FOR k=i TO 11: REA
D i$: PRINT i$;CODE j$(n,k);"  ",CODE o$(k): NEXT k: RETURN
9502 DATA " 1  col "," 2 ro*8 "," 3 dblh "," 4 lins "," 5 marg "
," 6 wide "," 7  n/l "," 8 step "," 9 Gmod ","10 Nlsb ","11 Nmsb
"
9990 POKE 26876,167
9991 INPUT "Date? ";i$: LPRINT "!N";CHR$ 6;: LPRINT #5'"CAD.BO L
isting ";i$'': LLIST #5: LPRINT "!O";CHR$ 12;: STOP
9999 CLEAR : RANDOMIZE USR 100: GO TO 0: RANDOMIZE USR 100: SAVE
 "CAD.BO" LINE 8995: GO TO 8995
```

THE SDPJ

The Sinclair Desktop Publishing Journal

In This Issue:

- Welcome to 1992
- Typeliner
- Grey Scale and Shading
- Adding a Mouse
- Color2Grey
- Coming Up...

Volume 3 Issue 1 Winter 1992
Edited By Mike Felerski

Typeliner

Typeliner is the desktop publishing extention program to the Word-Master word processing program. Typeliner is loaded into the Word-Master RAM Disk and is executed with the GET command. When Typeliner is purchased, it is configured for your type of printer interface. The program itself is set up initially to print to an Epson compatible printer although it can be customized using a special program for other types of printers.

Some of the features of Typeliner include full textual layout manipulation, inclusion of SCREEN$ files, line and box drawing plus multiple fonts. When Typeliner is run, it first asks for the name of a Word-Master text file which will be used in creating the page. After the name of the text file is entered, the name of the page layout file (if any) is entered. The program then jumps to the page layout screen, which is the

Continued on page 2

Welcome to 1992

The SDPJ is looking at 1992 as a challenge to keep Timex/Sinclair users interested in their computers with the help of new products in desktop publishing and graphics. Our plan is to provide **you** with information on products available without swamping you with details.

By bringing you this kind of product information, we hope to keep your Timex/Sinclair computer fresh and alive over the next year!

Mike Felerski, Editor

Grey Scale and DTP

Recently, the term "Grey Scale" has been tossed around in the Timex-Sinclair desktop publishing community. A "Grey Scale" graphic or SCREEN$ (as in the case of the TS2068/Spectrum) is one which has been converted from color to varying shades of black and white like a newspaper photo. As the colors vary from light to dark, a series of light to dense dot patterns are used to show the colors as shades of grey.

There are currently two programs for the TS2068 which will convert color TS2068/Spectrum SCREEN$s into "Grey Scale" images. The first is Zebra Systems ZPRINT 80 (currently available from RMG). ZPRINT 80 is a full printer support package which provides a TS2068 and Spectrum print driver for the Aerco, Tasman and A&J printer interfaces. ZPRINT 80 supports LPRINT, LLIST, COPY and a full page Grey Scale color SCREEN$ COPY.

The second utility is called COLOR2GREY by John McMichael and is available from Ed Grey Enterprises (see inset). COLOR2GREY is different from ZPRINT 80 in that it converts color TS2068/Spectrum SCREEN$s into Grey Scale SCREEN$s which may then be LOADed into any one of several desktop publishing programs.

Although I have caught wind of other such programs, ZPRINT 80 and COLOR2GREY are at the forefront of Grey Scale utilities. Both perform a different function, and each is a MUST HAVE for your desktop publishing software library. (For more information, see the COLOR2GREY article in this issue).

COLOR2GREY

As mentioned in the Grey Scale article in this issue of the Journal, COLOR2GREY is a desktop publishing utility which converts a TS2068/Spectrum SCREEN$ into a Grey Scale SCREEN$ so that it may be imported into a desktop publishing program package.

COLOR2GREY was written by John McMichael who also offers three Print Factory Graphic Designs packages which were reviewed in the previous issue of the Sinclair Desktop Publishing Journal (in Update magazine).

COLORGREY comes on cassette with a two page instruction set. It is introduced as "a unique graphic utility for the TS2068", with witch "a color SCREEN$ is converted to a black & white SCREEN$ with different shades of grey (greyscales) replacking the original INK/PAPER colors" as its own introduction states. COLOR2GREY also provides a Grey Scale editor for customization of the Grey Scale patterns.

COLOR2GREY comes standard with LOAD and SAVE to cassette, but it can be modified by the user to work with disk systems since the I/O commands are in BASIC. The two page instruction set contains the information to customize, backup and obtain support from the author.

The Main Menu options include the following: View Grey Scale SCREEN$, View Color Screen, Save GreyScale Screen, Save Color Screen, Save GreyScale Data, Load GreyScale Data, Copy GreyScale to 2040, GreyScale

(See COLOR2GREY on page 4)

TypeLiner

(from page 1)

At the Main Screen, text boxes are created, sized and located on the page layout area. The text boxes can be placed anywhere on the page and can be any size. Page two of volume 1 issue 4 of the Sinclair Desktop Publishing Journal was created using twelve separate text boxes and two SCREEN$s.

SCREEN$s are pulled in from the RAM Disk and then sized by Typeliner. Although SCREEN$s are proportionally limited as far as sizing is concerned, the effects allowed by Typeliner are more than adequate.

One important side feature is Typeliner's ability to print SCREEN$s as Grey Scales (or SCREEN$ shading as the manual states). This feature can be applied or not to each SCREEN$ on the page. This way a separate Grey Scale conversion program such as COLOR2GREY could be used for some SCREEN$s, and the Typeliner feature on others.

There are four types of boxes as well as horizontal and vertical lines available for placement on the page. The box styles are: Thin-line, shadowed, outline and thick-line. The Typeliner box/line features provide basic DTP building blocks. More complex borders can be loaded as SCREEN$s or even fonts!

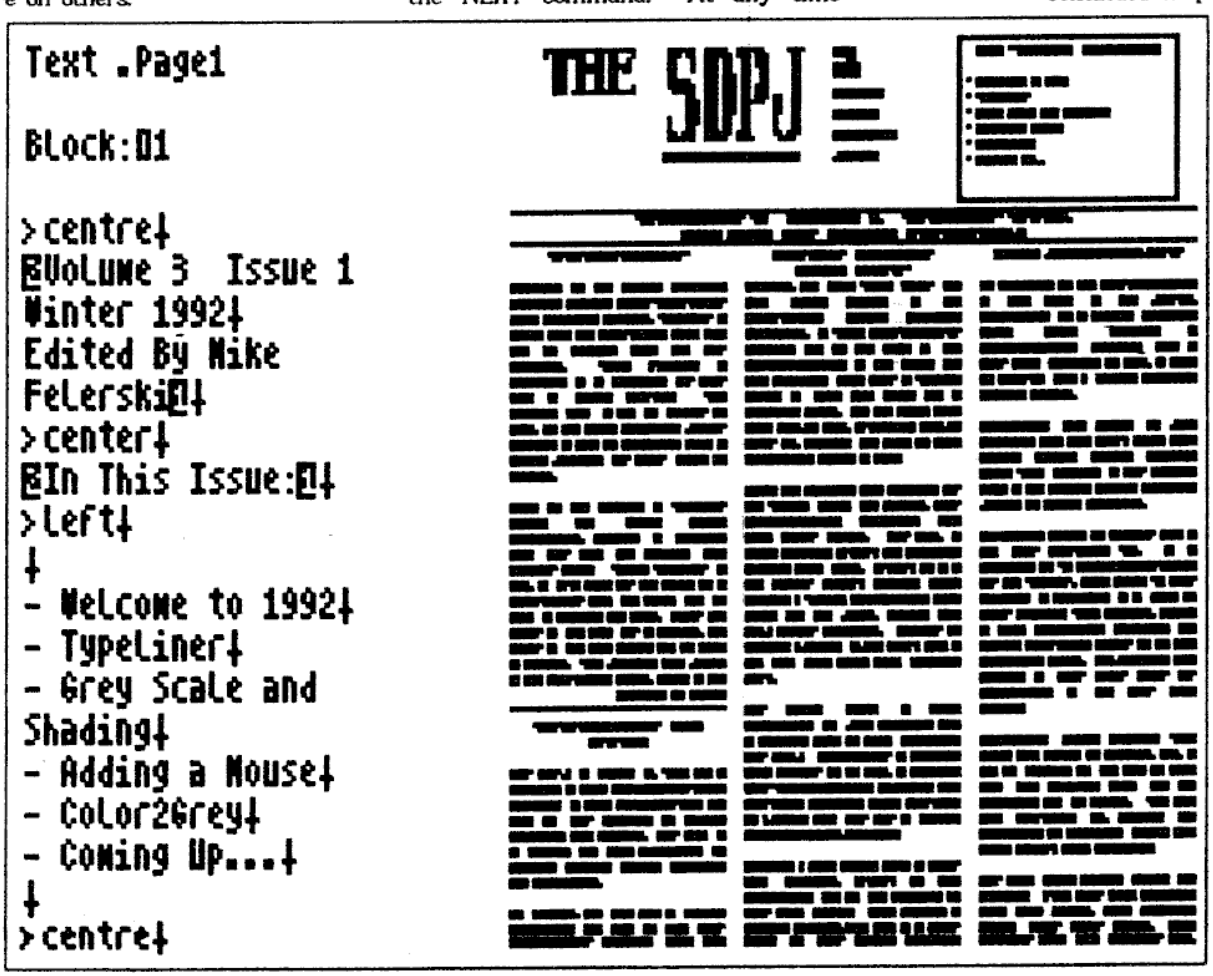
The figure below is an actual Larken (NMI) SCREEN$ snapshot from the Typeliner Main Screen for the front page of this issue of the Journal (Note: The last two SCREEN$ lines 22 and 23 are missing because Typeliner will not import a full 24 line SCREEN$). As we see in the figure, the right hand side of the Main Screen is a graphic representation of the actual page. The text has been replaced by lines which represent the lengths of text lines graphically.

On the left is a window which contains the actual text found in the first few lines of the text block. The text will change as we jump block to block with the NEXT command. At any time while paging through the text blocks, the E-Key (EDIT) may be pressed and we instantly jump to the Word-Master word processing program at the exact location of the start of the text block we were viewing. Thus, we have "Edit on the Fly" capabilities.

Once the page format is created the actual text can be inputed to fit within the text blocks with the VIEW command. Once the VIEW command is finished painting the screen, we end up with a page layout with the dotted text block lines removed and the graphical text representation of the page layout in its place. Finally, once everything is in its proper place and adjustments have been made, the page layout can be SAVEd separately and used later for future pages.

There are two types of page printing available for output to your dot-matrix printer: Draft and Print. The draft command is used primarily for visual layout of the physical page. The text printed in the Draft option

Continued on page four...



INCREASE YOUR DESKTOP PRODUCTIVITY WITH A MOUSE FOR YOUR KEMPSTON PORT

For the last three or four years I have heard several rumors regarding people using a Commodore 64/128 compatible mouse with the TS2068. But due to its price (between $35 and $40), I was not ready to experiment until I had confirming information to its compatibility. The November-December issue of Sinc-Link with George Chambers' letter to "Out of Towners" contained just the information I needed to make that purchase.

The mouse I have purchased is the "Winner M3" mouse which is compatible with the Commodore 1350 and 1351 mice. The mouse plugs into any Kempston compatible joystick port. Since I have a Larken disk interface, I plugged my mouse into the Larken interface's Kempston port. To initialize the mouse you must press and hold down the right mouse button when you power on the computer. This move can be a little tricky if you wish to activate a Larken AUTOBOOT program from disk (remember your must hold down the <ENTER> key to activate an AUTOBOOT program while powering up).

My first application on which to try my mouse was the Print Factory's First Edition. As soon as the program came up, the mouse operated flawlessly as if were made for the TS2068/Spectrum!

And what are the advantages to using a Commodore compatible mouse? Let's see...

- One Hand Operation
- Smooth Controlled Movement
- Quick and Easy "Fire Button" Activation
- No Need for Software or Patches to Existing Programs (Just and Plug and Go!)

On the negative side...

- Only Works with Kempston Compatible Joystick Interfaces, But Not the TS2068 Joystick Ports (so far).
- Mouse Cord is Much Too Short (about 24"/70cm long) and Limits Mobility without a Joystick Extention Cord (available from Radio Shack for around $10, #26-117).

-- Mike Felerski

TypeLiner

(from page 2)

is just barely readable but graphics are much more clear.

The final or Print option produces the final copy which includes three pass text printing for clarity and ledgibility of the text characters thus producing the page you see here.

There are several other features within Typeliner including Renumbering Text Blocks, a measurement grid, line spacing adjustment, double height text, and a built-in font editor.

In all, Typeliner is a very complete desktop publishing extention to the Word-Master program. It produces the most professional output to a dot-matrix printer I have ever seen from a TS2068/Spectrum. Although the price of Typeliner seems high (and I realize that most if not all Timex-Sinclair owners are always looking for a bargain), from a price/performance stand point, nothing offered in the Timex-Sinclair world even comes close.

Up Coming in the SDPJ...

In future issues of the Sinclair Desktop Publishing Journal we will look at the DK'Tronics Light Writer light pen, the Genius Mouse and maybe the 128K of the OCP Art Studio.

Currently my TS1500 is out of commission. But upon its repair we will return to covering the Master-Scribe desktop publishing program for the TS1000 and TS1500 family. See ya soon!

Where to Write for Further Information

Word-Master, Typeliner and Headliner

Jack Dohany
390 Rutherford
Redwood City, CA 94061
Phone: (415) 367-7781

RMG Enterprises
1419 1/2 7th Street
Oregon City, OR 97045
Phone: (503) 655-7484

PCG
61 School Street
Barrow-In-Furness
Cumbria, UK
LA14 1EW
Phone: 0229 36957

COLOR2GREY

Ed Grey Enterprises
P.O. Box 2186
Inglewood, CA 90305
Phone: (213) 759-7406
BBS: (213) 971-6260

John McMichael
1710 Palmer Drive
Laramie, WY 82070
Phone: (307) 742-4530

Print Factory DTP Software

Byte Power
1748 Meadowview Avenue
Pickering, Ontario L1V 3G8
Canada

Print Factory Graphics

John McMichael
1710 Palmer Drive
Laramie, WY 82070
Phone: (307) 742-4530

Fonts and More

Mountaineer Software
749 Hill Street
#9
Parkersburg, WV 26104
Phone: (304) 424-7272

RMG Enterprises
1419 1/2 7th Street
Oregon City, OR 97045
Phone: (503) 655-7484

Video Interface, SCREEN$ Snapper

Romantic Robot UK Ltd.
54 Deanscroft Avenue
London NW9 8EN
England
Phone: 081-200-8870 (24 Hours)

Misc. Interfaces & Software

Datel Electronics Ltd.
Govan Road
Fenton Industrial Estate
Fenton, Stoke-On-Trent ST4 2RS
England
Phone: 0782-744707 (24 Hours)

Sinclair Desktop Publishing Journal
1284 Brushwood Avenue
Cincinnati, OH 45224

The Making of this Issue...

This issue of the Sinclair Desktop Publishing Journal was created using Word-Master with Typeliner for the first, second and fourth pages. The third page was created using The Print Factory's First Edition program. The new SDPJ masthead was fabricated with The Print Factory's Quick Screen program, and the Companion's Super Set fonts.

The SCREEN$ snapshot on page two was taken with the Larken NMI button and was loaded directly from the snapshot disk save into Word-Master and Typeliner. All boxes and lines were provided through the Typeliner program Box/Line feature. Headline fonts came from Word-Master/Typeliners Fat_Face font.

COLOR2GREY

Editor, Do Another Conversion and Quit to BASIC. The operation is very simple: When the program LOADs, it asks for the filename of the SCREEN$ be converted, and it then LOADs the SCREEN$ and begins the conversion.

When it is done you can view the original SCREEN$ and the converted Grey Scale SCREEN$. If you like it, you can SAVE it or you can do another conversion.

QUANTA's Feb. 1992 revisions of the Library added files to 7 disks.

Disk Name	Contents	Free Sectors
GUIDE	(Archive based Library Guides)	597
C.A.D_1	(Computer Aided Design)	312
CT_1	(Communications/Transfer) revised Nov.91	309
CT_2	(a BBS program) revised Nov.91	429
EDUC_1	(EDUCational) revised Nov.90	345
EMACS_1	(Micro EMACS V3.9p SOURCE FILES)	36
EMACS_2	(Run version. NON-SOURCE + new doc's)	704
GG_1	(General Games)	222
GG_2		330
GG_3	revised Feb.92	789
GS_1	(Games advent/Strategy)	108
GS_2		105
GS_3		75
GS_4	revised Feb.92	468
GRAF_1	(Graphics programs)	231
GRAF_2	revised Nov.90	435
KERMIT_1	(Kermit for the QL)	99
KERMIT_2		825
KERMIT_3		354
LANG_1	(Forth, C, etc) revised.Jan 92	138
MAND_1	(MANDELbrot programs) revised Nov.90	138
MAND_2	New Nov.90	12
MATHS_1	(Maths, etc)	186
MATHS_2	revised Feb.92	831
MD_1	(Misc & Demonstration) revised Nov.90	729
MD_2	New Nov.90	87
MD_3	revised Nov.91	228

Disk Name	Contents	Free Sectors
PAGE_DES	(Version 1)	60
PF_1	(Printer utilities & Fonts)	243
PF_2		222
PF_3	revised Jan.92	540
PSION_1	(PSION utilities etc)	144
PSION_2	revised Nov.90	195
PSION_3	revised Jan.92	198
PSION_4	New Nov.91	831
QDJM_1	(JM ROM decoded)	501
QDJM_2		687
QDJM_3		45
QDJM_4		225
QDJS_1	(JS ROM)	459
SP_0	(Reserved - T. TEBBY + TRAPS ONLY)	1032
SP_1	(Specialist programs)	255
SP_2	revised Jan.92	18
SP_3	revised Feb.92	246
SP_4	New Nov.90	315
SP_5	New Nov.91	330
UD_1	(Dir & copy Utilities) revised Feb.92	546
UG_1	(General Utilities)	144
UG_2	revised Nov.90	96
UG_3	revised Feb.92	162
UG_4	revised Feb.92	471
UT_1	(ToolKits/MachineCode)	201
UT_2	revised Nov.90	903

QUANTA members may get any of these disks by sending a formatted disk for each disk requested, and enough funds to cover return postage, to the U.S. Sub-Librarian.

If you wish, I can provide disks at a cost of $.50 per disk. Order 3 or more disks and postage is free.
Of course, any questions, you may call. 1-317-291-6002

U.S. Librarian
Paul Holmgren
5231 Wilton Wood Ct.
Indianapolis, IN . 46254.

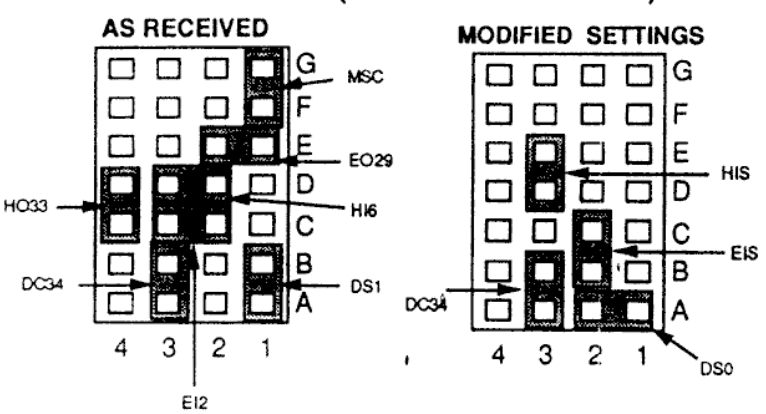
JUMPER SETTINGS FOR THE 3.2 MEG. DRIVE

TIVERTON, RHODE ISLAND, USA - DICK TAYLOR

Well, it sounded easy enough from Miracle System's Ad for the Gold Card in QL World; "enables the QL to interface to 3.2M Byte diskdrives (as well as 720K and 1.44)". I could certainly see the possibilities for high density drives. I knew that Miracle had problems with an early TEAC ED drive, but they insisted that Gold Card ROM versions 2.15 and later had resolved the problem (see earlier issues of IQLR for details).I had been having minor problems with one of my floppies, and this seemed to be an opportune time to order a replacement and upgrade my system at the same time. Even though the cost of ED floppy disks is extremely high ($6.00 per diskette), I only plan on needing a half dozen of them. The access speed of the ED drives is 19 ms, the same as for the Miracle System's Hard Drive. I plan to setup several "system" disks containing associated programs and use them as mini hard drives (3.2 meg. each). This will give me the advantage of a hard drive without the high cost. I called J.D. Hannam Distributors and ordered a 3.2M TEAC FD235J 3653 for $95.00 and a 1.44M TEAC FD235HF3217 for $55.00,which I received within a week. Then the trouble began. The 1.44M drive worked fine with the jumper straps in the factory settings. Even the drive select jumper was already in the position to make it flp2. The 3.2M drive was another story. It comes with seven jumpers and 28 pins on which they can be installed. This provides an almost infinite number of combinations. Over the next week, Bob Dyl and I tried just about every one of those infinite combinations. Of the three write and three read formats that the drive has to recognize, (3.2M, 1.44M and 720K), I was able to get almost any combination of five (such as read all three densities but only write to 3.2M and 1.44M).My next move was to call Stuart Honeyball at Miracle Systems for help.To my surprise, his comment was "we tried a TEAC drive when we first started, but never did get it to work". This is not what we had been led to believe, nor the level of support we had come to expect from Miracle. He further suggested that I call someone in Germany (no suggestion as to who). I wrote to Jochen Merz and Franz Herrmann, but as it turned out we solved the problem before they could reply. In the meantime, Bob had been on the phone continuously to J.D.Hannam, TEAC and Mitsubishi with the results of our latest attempts. All three of these organizations were terrific and expended a considerable amount of time and effort on the part of their technical staff to find a resolution. The major problem they had was that they were not only unfamiliar with the QL/QDOS,but also had no information on Gold Card protocol. By this time Bob and I were convinced that a solution could be found, because we had been able to find combinations of strap setting that allowed us to read and write to all three densities even though we couldn't made it happen all at once.Finally, TEAC had us start removing straps. This put us on the right track that finally led to success. The illustration below shows the strap settings that make this drive 100% compatible. The one thing that you may want to change from the illustration is the strap labelled DS0. The position shown is for the drive to be Flp1. If you want it configured for Flp2 then the DS0 strap would have to be shifted to A1-B1.These drives work fantastic, provide a tremendous upgrade in access speed and storage capability and I would recommend them to anyone with a Gold Card.

TEAC FD235J 3653(US VERSION)

TEAC FD235J 3650(EUROPEON VERSION)



TS2068 UPDATE ISSUE DISKS

These disks contain at least one major piece of software written specifically for disk drive and are guaranteed to be worth the money. The rest of the disks are filled with various utility programs taken from the issues of UPDATE and a few surprises thrown in. Half of the money goes to the author and is meant to encourage new programming for the TS2068 that makes use of the various disk drive systems. All are $20.00 per disk (add $1.00 Canada) except where noted in the listing. Postage and handling is included. Both 3 1/2 and 5 1/4, 40 and 80 track available. Please add $5.00 for mailing to other countries. We accept personal checks, company checks, money orders. No charge cards please.

1) Daisy Word Processor, now available for Aerco and Oliger.

2) Bob Hartung DOSDEX UTILITY ISSUE DISK, a complete disk management group of programs for the Oliger Interface only. This includes Multi-Manager for file handling. This collection has recently been updated and expanded.

3) MAIL MERGE ISSUE DISK, Oct 87 and Jan 88 issues of UPDATE utilities added to fill out this disk. Includes a tutor program for the Mail Merge program, List Looker, Purity, J-Utilities and Extra Memory Utilities. Larken, Oliger and Aerco versions.

4) WIDJUP'S CAD PROGRAM, this will give you professional results from your TS2068 for computer aided design. Authored by William J. Pedersen, perhaps the NO.1 authority on the inner workings of the TS2068. This program can be used to create user friendly printed circuit boards, computer art or desktop publishing files It does not need expanded memory cartridges and is available in four versions: (a) Oliger for either IBM compatible printers or for the Olivetti Ink Jet. (b) Larken for IBM compatible printers or the Olivetti Ink Jet printer. Please specify version. NEW!

5) OLIGER DISK DRIVE BBS PROGRAM, this allows users of the Oliger interface to be able to operate a disk based bulletin board from the TS2068. The disk is also filled with many other Oliger disk routines and tips on using the Oliger System. New by Paul Holmgren. Can use upto four DSQD disk drives.

6)The HYBISCUS ENSEMBLE, consisting of two separate, but complimentary sets of programs. A) Daisy.B6 Ensemble, and B) Udbm.B6 Ensemble. LKDOS only, $22 each or $36 for both. The best file and database available for Larken, by Bill Jones. The price remains the same on this one, no change. Wordprocessor included.

7) TS2068 Super Calc by Bill Jones. Available in both Larken and Oliger formats. Handles loans, amortization, savings and fixed investments, plus a calculator and all for only $15.

UPDATE COMPUTER SYSTEMS invites you to submit software programs that may become Issue Disks. Please submit program on disk, with documentation and article to accompany the program. Our goal is to get North American software available and known. We also solicit minor programs, tips and utilities for print in future issues of the magazine. Please do not submit unlistable programs or copy protected programs.

QL UPDATE ISSUE DISKS

These disks contain at least one major piece of software written specifically for disk drive and are guaranteed to be worth the money. The rest of the disks are filled with various utility programs taken from the issues of UPDATE and a few surprises thrown in. Half of the money goes to the author and is meant to encourage new programming for the QL that makes use of the disk drive systems, and microdrives on both the expanded and unexpanded QL. Where possible we will give a version for each of these configurations. Some of the programs take advantage of TK2 by Tony Tebby. All are 20.00, except QLuster, which is $15.00; includes P & H, add $1.00 CAN.Available as 3 1/2 or 5 1/4 disks. Add $5.00 for mailing to other countries. We accept personal checks, company checks, money orders as well as International Postal Money Orders, but no charge cards. If ordering on MDV, then please include one that is already formatted, so we will know it will run on your QL. Due to the expense of MDVs this is necessary. If two MDVs are required we will state so in the ad.

1) HARTUNG UTILITY ISSUE DISK- Several excellent programs such as stand alone data base, Address, and QSO files. All are in Superbasic. Lots of hints and tricks for programmers. Requires some knowledge of Superbasic or a yen to learn. Recently updated by Bob Hartung. Address file can be used as inventory program. It can print out labels. Both screen or paper printouts can be by Alpha sort, or be by last name.

2) CABLE ARCHIVE ISSUE DISK- Contains six Archive programs along with Doc files to get you going on making use of the Archive programming language. Also has Tasket, plus Doc file, to give you multi-tasking on your QL (much cheaper than QRAM or Taskmaster). Included is Arithmetic, a Superbasic program for math, along with math drills. This is for both the advanced and beginner user and greatly extends the use of Archive. To order on microdrive send two formatted microdrives, too much for one!

3) QLUSTER ISSUE DISK by Al Feng- Ql utilities to unclutter your disks and microdrives. COPY, DELETE, FORMAT, PRINT, VIEW, plus extended use of some Tool Kit 2 commands. TK2 is required. These are TURBO compiled for speed. Multitasks and uses minimal key presses. Includes Fast-Disk and Vegemat2, a super clone making program. Also Snap Shot-a directory column or condensed printout program.

4) DOS EMULATOR COMPANION ISSUE DISK by Al Feng- Just released in Oct. issue. Makes better use of Solution, PC Conqueror, DisCover, XOVER, QLuster and scr_codes. If you are going to use the emulators, then check this out, you won't regret this buy.

5) QLuMSi DOS by Al Feng- a MSDOS simulator and front end program for the QL, also includes other programs by AL Feng for file management and cloning of programs. A Great Learning Tool

UPDATE COMPUTER SYSTEMS invites you to submit software programs that may become Issue Disks. Please submit program on disk, with documentation and article to accompany the program. We are here to get North American software available and known. We solicit programs, tips, reviews and utilities for future issues.